THE MEDICAL NEWS.
A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. 83. NEW YORK, SATURDAY, NOVEMBER 28, 1903. NO. 22.

ORIGINAL ARTICLES.

DIET AND DRUGS IN NEPHRITIS.*

BY WILLIAM S. GORDON, M.D.,

OF RICHMOND, VA.;

PROFESSOR OF PRINCIPLES AND PRACTICE OF MEDICINE, UNIVERSITY COLLEGE OF MEDICINE, RICHMOND, VA.; VISITING PHYSICIAN TO VIRGINIA HOSPITAL, ETC.

ALTHOUGH the kidney is comparatively small in size, its blood supply is large and its function important. It has an excreting and probably an internal secreting work to perform. It is a long-suffering organ and has a heavy burden to bear. Its health depends, in a great measure, upon the normal metabolic and depurative work of the liver, upon the state of the genito-urinary tract below the upper opening of the ureter, upon the cutaneous circulation and vasomotor influences, and upon the absence of pressure and traumatism. Disease of the kidney may rapidly lead to destruction of life, or may persist for years without producing symptoms sufficiently marked to attract the patient's attention. On the other hand, the early restoration of function in some of the gravest cases of acute nephritis, and the slow but steady and resistless progress toward a fatal termination of most of the chronic cases impress upon the physician the importance of prompt diagnosis and treatment.

Inasmuch as the fundamental principle in the treatment of all diseased organs is to secure rest, and inasmuch as the work of the kidney is to eliminate certain ingredients of the blood, the retention of which would be injurious, it is essential in the management of nephritis not only to maintain a normal composition of the blood, but at times to so change the quality of the blood as to reduce its excretion products to a minimum. Syphilis, lead poisoning, and other infections or toxic conditions require, in addition, a specific or special treatment.

Since the quality and quantity of food and the use of alcoholic stimulants are acknowledged to be frequent and potent factors in the production of renal diseases, the matter of diet in nephritis is to be esteemed of prime importance. Dieting is not what the patient so often supposes it to be—starvation, but a regulation of food in such a manner as to rest the kidneys and, at the same time, adequately nourish the body. Nor should it be forgotten that a diseased kidney must be fed, and that no injury must be inflicted upon it by withholding what is required for its own vitality and the performance of any function at all. This truth necessitates a distinction in the treatment of acute and of chronic nephritis; in the former of which diseases complete abstinence from food for a while may be of great service, whereas in the other condition the blood must be enriched and the kidney nourished while its work is diminished.

Apart from the views of other observers, my own experience leads me to express the belief that gout and lithemia, in whatever manner produced, are responsible for a large number of cases of nephritis. Those of us who have studied our cases carefully and watched the effect of irritants in the blood or urine cannot escape the conviction that excessively acid urine, excess of solids, and especially the presence of excess of uric acid and calcium oxalate cannot fail, in the long run, to injure the delicate epithelium of the tubules and to stimulate the growth of connective tissue. In treating nephritis, therefore, it follows that a diet which promotes a normal reaction of the urine and prevents the formation of abnormal ingredients is clearly indicated.

Having attempted to lay down general dietetic principles, let us bestow some attention upon special articles of food. I recall a case of which a brother practitioner spoke to me, that of a young child suffering with acute nephritis, drinking a large amount of milk as an exclusive diet, but still losing a decided amount of albumin. I advised a diet of water and carbohydrates for several days, thus reducing to a minimum the amount of urea excreted. The result was prompt improvement. I have recently had under my care a little girl who had scarlet fever a year ago and who subsequently developed nephritis. Intermittent albuminuria persisted after the casts had disappeared. The milk diet adopted by the first physician who treated the case may have been serviceable in the acute stages, but the child was left anemic and the albuminuria was not relieved. I discontinued milk; allowed vegetables and fruits, chicken and eggs in moderation, administered iron, and sent the child to the mountains. At last accounts the albumin had disappeared and the patient was steadily improving. A third case is instructive—that of an elderly woman with a long-standing case of nephritis. I advised a diet mostly of milk. Constipation resulted and the albumin and casts increased. Complete flushing of the rectum and lower bowel caused a marked diminution of the albumin, and practically, a disappearance of the casts. These cases convey their own lessons, and teach that an exclusive milk diet, so often recommended for nephritis may do harm by being abused and furnishing too much urea, by causing constipation and absorption of toxins, by failing to supply the blood with sufficient nourishment, or by setting up lactic or butyric fermentation. The diet should be suited to the case, and a routine diet for all cases is unscientific and should be avoided.

*Read at the meeting of the Medical Society of Virginia, at Roanoke, Sept. 15, 16 and 17, 1903.

On the other hand, we are all familiar with the benefit derived in a large number of cases of nephritis from a diet composed wholly or largely of milk. Abstinence from alcohol, tea, coffee, and cocoa and a partial or complete reduction of sweets and acids, with the use of alkaline waters, rarely fail to produce prompt and beneficial results, especially in acute cases and in the first stages of the chronic cases. Haig claims that gout is not primarily due to excess of acids and sweets, but that these articles do harm by causing acid fermentation engrafted upon preexisting conditions due to excess of proteid food. However this may be, I am convinced that a large number of cases of nephritis, lithemia, gout, oxaluria, and other allied abnormal states, are not cured or held in abeyance merely by cutting off the main articles of food or drink which Haig enumerates as the causes of uricacidemia. It is true that nephritis, once established, changes the composition of the blood and, consequently, of the urine; but it is all the more true that abnormal blood leads to abnormal urine, and that abnormal urine leads to renal disease. My own rule is to so regulate the patient's diet as to maintain a normal urine; and so long as the urine is normal the kidney will, in the large majority of cases, be healthy or show marked improvement. Even secondary causes will under these circumstances be for the most part inoperative. So much for general principles. The careful practitioner will make special adaptations and note his results by repeated urinary examinations.

There is one point regarding nitrogenous food which ought to be emphasized, and that is that fowl, game, fish, and eggs should not be indulged in to excess because the patient has been prohibited the use of butcher's meat. There are cases in which all of the above-mentioned articles have to be cut out of the dietary. The injurious effects of eggs have been recently impressed upon me by the history of one of my cases, a young man who was markedly lithemic and for years had been the subject of an obstinate psoriasis. After months of treatment, large dietetic, he returned to me with samples of urine which showed a specific gravity of 1.036 and contained an abundant precipitate of calcium oxalate. The eggs which he acknowledged having freely eaten were prohibited, and in ten days the urine was in every respect normal.

Although I believe that hygienic measures are of paramount importance in the treatment of nephritis, I am not a skeptic on the subject of drugs. The more we study drugs and become familiar with their physiological action the more should we be convinced of their therapeutic value when intelligently employed. Their action is governed by certain laws which, in a measure, we are supposed to understand; and leaving out idiosyncrasies and unreliable preparations of medicinal agents, we may reasonably expect more or less success from an application of our therapeutics based upon the pathology and the correct diagnosis of the case in hand.

The value of diuretics in acute nephritis when urinary secretion has almost or entirely ceased is a contested point. Theoretically, they may be contra-indicated in many cases, and high authorities advise against them; but theories and the dictum of authorities often wane before facts. I can vividly recall two cases of scarlet fever occurring years ago in my father's family, and followed by severe nephritis and anasarca. The good old family doctor made an acetic extract of iron, so to speak, by dropping rusty nails into vinegar and drenching his patients with the potion. And I shall never forget how busy the attendants were kept carrying off the dropsy, and how rapidly the sick ones recovered. A year or two ago I was called in consultation to a man suffering from acute parenchymatous nephritis. The kidneys had apparently stopped working, and nothing but the profuse diaphoresis maintained by the attending physician saved the patient from fatal uremia. We concluded to give infusion of juniper and bitartrate of potassium. The result was magical; free diuresis set in, and the case rapidly went on to convalescence. Such happy results are often obtainable in chronic cases when the tubules become blocked. Irritating diuretics may do harm, but we are fortunate in possessing many agents which need not be mentioned but which are non-irritating and productive of the greatest benefit. In this connection, it is well to remember that an efficient cholagogue administered before the diuretic or in conjunction with it is a powerful auxiliary in the treatment. Free biliary secretion and open bowels are frequently sufficient to produce a prompt change for the better in the patient's condition.

The usefulness of diaphoretics, particularly in acute cases of nephritis, cannot be questioned. Such remedies as spirits of nitrous ether and solution of ammonium acetate, and others, have their place, but for emergencies pilocarpus stands at the head for efficacy and promptness. Depression, it is true, may accompany its action; but used with caution and in cases of uremia, with a strong and tense pulse, it is capable of changing the condition of the patient from one of imminent danger to one of comparative or complete safety.

I have already referred to the good effects of cholagogues. It is hardly necessary to mention the value of hydragogue cathartics and salines both in acute and chronic cases, and to invoke their aid when dropsy occurs, or when diuretics and diaphoretics are contra-indicated or fail in their action.

Nitroglycerin is oftentimes invaluable. In acute cases of nephritis with high pulse tension and diminished flow of urine its place cannot be easily supplied; while in chronic interstitial cases its influence upon the general and upon the renal circulation is equally pronounced. The tolerance of this drug by many patients is noteworthy. When normal pulse tension fails and the heart-chambers dilate, the resulting passive congestion is to be met with drugs which force the blood

through the kidney. It is here that digitalis is preeminent. In my own experience it has no equal, and there are few patients to whom it cannot in one form or another be safely and successfully administered. Its substitutes, however, may be necessary and are not to be underrated.

Although the measures used in chronic nephritis are more hygienic than medicinal, there are certain drugs, outside of those employed in complications, which serve a good purpose. Among these iron stands preeminent, especially when anemia has set in and the blood-vessels need to be nourished and strengthened. As to the particular preparation of this agent, I confess to a growing confidence in the old tincture of the chloride of our fathers and grandfathers. Much depends upon the dose and its combination with correctives and synergists. Bichloride of mercury, dilute hydrochloric acid and liquor of the chloride of arsenic are valuable auxiliaries, whose action, whether singly or in combination with iron, are oftentimes forcibly demonstrated in interstitial cases. In parenchymatous nephritis, with anemia, dropsy, and deficient urinary excretion, the time-honored Basham's mixture can hardly be dispensed with, as it is both a reliable hematinic and diuretic. It is encouraging to observe pale urine becoming normally colored under the use of iron. this effect being one which I always desire and endeavor to obtain, and which was very noticeable in one of the young children to which reference has been made. When the tincture fails, other preparations of iron can be used with advantage.

In anemic convulsions, no one doubts the efficacy of chloral hydrate and the bromides, but there may be those who would be disinclined to use morphine. For my own part, I do not hesitate to invoke its aid. It is the only drug which in certain cases will put the physician in command of the situation, and the patient is entitled to the relief or alleviation which it secures. I have never had reason to regret, on account of any injurious effects, the use of morphine when circumstances seemed to demand its employment. That it may do harm is undeniable, but unpleasant effects can be prevented by not giving too large a dose. Veratrum viride is a remedy with which my experience is limited, although its virtues as a reducer of pulse tension and an internal bleeder are well established. In acute inflammatory conditions, with a strong pulse, the good results obtained from aconite must not be forgotten.

For the debility which, sooner or later, appears in all cases of subacute or chronic nephritis, recourse must be had to stimulation. The selection of the agent for this purpose requires discrimination. On account of the physiological relation of urea to ammonia, it is questionable whether the salts of ammonium may not, if too long continued, increase the production of urea, a result which is far from desirable when the secreting epithelium of the tubules is partly or wholly destroyed. Under these conditions a fatal termination is not far off; nitrogenous food itself makes the patient worse; and any drug which causes tissue waste or increased formation of urea in the liver is, if possible, to be avoided. Alcohol, so often the first cause of nephritis, may be beneficial, especially in elderly people who are the subjects of gradual degeneration of the kidney. It is best to give it with food. In other cases, however, its regular use as a stimulant cannot fail to react upon the system and intensify the symptoms which it may temporarily appear to relieve. Strychnine may be contra-indicated in excitable states of the nervous centers, but in such conditions the pulse is usually tense or strong, and the drug would not be considered. Many are the times when it can be given with propriety and marked benefit. When the heart fails and the pulse grows soft, thin and frequent, it is a powerful ally of digitalis. Taken all in all it is the best remedy in our possession for weakness and exhaustion of the nervous system, while its combination with the hypophosphites will sometimes produce results unattainable by either drug alone.

In conclusion, it is needless to add that it has not been my purpose to treat the subject exhaustively, nor to discuss fully specific articles of food and specific drugs. On the contrary, my aim has been to call attention to the underlying principles which should be observed in treating nephritis with diet regulation and medicinal agents. The leading drugs have been mentioned in order to illustrate principles, and, with the same idea in view, reference has been made to certain important articles of food. If what has been written will stimulate to a deeper study of the physiological action of drugs and of the metabolism of food products in the body, and lead to a renouncement of that skepticism on the subject of medicinal therapeutics which is growing too common in our ranks, I shall be abundantly rewarded for the privilege of reading this paper.

MASTOID DISEASE AND CEREBELLAR ABSCESS.

BY SEYMOUR OPPENHEIMER, M.D.,
OF NEW YORK.

THE importance of encephalic pus collections in their relation to the diseases of the temporal bone, in which purulent inflammatory changes play an essential part, can only be estimated by the amount of destruction wrought in the brain tissue and adjacent structures and by the lethal issue resulting in the absence of prompt recognition and surgical relief. While various portions of the brain may be the seat of abscess formation, the temporosphenoidal lobe and cerebellum concern the otologist more than any other portions, as these areas are the most frequent site of secondary infection from the temporal bone. Cerebellar abscesses as far as their primary origin is concerned, may be classed into two groups, those due to infection by way of the labyrinth, through the petrous portion of the temporal bone and a second class in which the infection is derived from the mastoid process. The latter is the form which I desired to consider here.

The location of the pus collection in the cerebellum when derived from the original mastoid focus, is practically more or less constant in the anterior portion of the lateral lobe and on the same side as the area of bone necrosis, although in rare instances, multiple, discrete abscesses have been found on autopsy. Moos records a singular case in which the cerebellar abscess was on the opposite side to the diseased ear and was also associated with a cerebral abscess on the same side as the ear affected. The source of infection if far back in the mastoid process, will produce the brain lesion in the posterior part of the cerebellum, the direction in which the ear disease may be propagated varying as shown by Pitt, with the position of the sulcus for the lateral sinus.

While the groove varies considerably in different cases, in some temporal bones it is found well forward and in very intimate relation with the mastoid cells, so that the presence of a necrotic area in this vicinity, would greatly aid in facilitating the spread of the infection backward toward the cerebellum. For should this slight barrier break through and an extension of the purulent process take place through the inner wall with a circumscribed meningeal infection, this portion of the encephalon will inevitably be the seat of the pus collection. The sigmoid groove thus plays a prominent part in the conveyance of the infection, although the osseous lesion as regards its primary inception is less directly in relation with the abscess cavity than is usually the case with cerebral abscesses.

The thickness of the inner mastoid wall also acts as a restraining factor, particularly in children, the rare occurrence of cerebellar abscess in the very young from this locality, depending as shown by Gruber, upon the fact that the bony material intervening between the mastoid antrum and the cranial cavity, exists in relatively larger amounts in early life, than at a later period. But at any age, should this intervening layer of bone undergo destructive changes as the result of a mastoiditis and the suppurating process convert the sinus into an abscess cavity, the chances are largely in favor of a subsequent cerebellar abscess, provided the patient does not succumb to the sinus phlebitis or infective meningitis. The brain abscess however, does not in all cases necessarily follow the mastoiditis directly, but may arise from an infective sinus thrombosis or an epidural abscess.

The large proportion of the cases of this class not being dependent upon an acute ear affection, as cerebellar abscess from this cause is very rare, but rather from an exacerbation of a chronic or latent focus of infection in the mastoid cells, which has been incited to renewed activity by some recent irritation. Such a case being reported by Kirkland in a boy of sixteen years, where the aural trouble has existed for three years. There was intense pain in the left ear, the temperature was 103° F., the mastoid was swollen and when the latter was opened it was found to contain but a few drops of pus. Severe occipital pain, left optic neuritis, vomiting, giddines and drowsiness with a normal temperature and pulse then ensued and the skull was trephined one inch above the suprameatal wall with a negative result. On the following day the skull was again trephined over the cerebellum and a half dram of foul pus was evacuated, with the ultimate disappearance of the bad symptoms.

In other cases the inner mastoid wall may remain perfectly intact and the infection will travel through the small channels in the bone by way of the minute veins running from the surface of the cerebellum to the lateral sinus and from this location to the mastoid interior. The following case in which the infection was traced directly from the mastoid cells, resulted in a successful termination after operation:

L. G., male, aged thirty years; has had otorrhea of the right side for ten years, but no serious symptoms were complained of until one week before he was first seen, when giddiness and pain over the mastoid region developed. The mastoid was swollen and tender, with bulging of the wall into the canal and usual signs of a chronic otitis were present with a perforation in the posterior inferior segment of the drum membrane. He also complained of a gradual loss of weight and there was facial palsy on the same side as the mastoid disease. Anorexia, constipation and foul breath were also present, with beginning optic neuritis. Vertigo was the most prominent symptom, while nausea and vomiting were also occasionally present. Intense pain was complained of over the occipital region on the right side, with sluggish reaction to light of the dilated right pupil, and the temperature was 97.2° F., while the pulse varied between 60 and 70. Physical weakness was extreme, the gait was staggering, there was weakness of the right arm, exaggerated knee-jerk and the patient lay on the left side.

Cerebellar abscess following mastoid disease was diagnosticated and immediate operation was advised and consented to by the patient. Under ether anesthesia and with the usual aseptic precautions, the mastoid operation was first performed and considerable greenish pus and necrosed tissue was found occupying the mastoid cells, while a minute sinus with a corresponding small area of necrosis, led into the sigmoid groove. This was removed and the sinus was found to be somewhat discolored but otherwise healthy, while the dura was bulging into the wound. The brain membranes were opened and a grooved canula was plunged into the cerebellum, when about half an ounce of fetid pus was evacuated. Introduction of the encephaloscope showed a firm, resisting, limiting membrane. The abscess cavity and mastoid wounds were gently washed out with a 1:5,000 bichlorid solution and a gauze drain inserted. The temperature ran an erratic course for several days, but at the expiration of a week all of the severe symptoms had disappeared. The abscess cavity continued to discharge for two weeks when it ceased

and the patient rapidly made an uninterrupted recovery.

The frequency of cerebellar abscess, as compared with the intracranial complications of mastoid disease, is but small; Barker believing, from his experience, that less than a tenth part of the ordinary complications of aural disease consists of this form of pus collections. While Gradenigo, in a study of 68 cases of mastoiditis, found endocranial complications in 12 and of these but two were cerebellar abscesses. As regards the proportion of cerebellar to cerebral abscesses one may safely say that of all encephalic pus collections of otitic origin, at least 25 per cent. are located in the cerebellum and that the majority of these are in the anterior surface of this portion of the brain, in immediate proximity to the sigmoid groove. Körner, in 100 cases of brain abscess, found the cerebellum alone involved in 32, while in six cases both cerebrum and cerebellum contained a purulent focus. He found twice as many in males as in females and also agreed with the majority of observers that they were more common on the right side. Allport, in 169 cases, found 31 in the cerebellum; Jansen, in 16 otitic brain abscesses found 9 in this locality, a quite unusual experience; while Picque and Ferrier, in 119 instances, found 24 in the cerebellum, 4 in both this locality and the cerebrum and 1 in the peduncle. Barr, in 76 cases, found abscesses 13 times in the cerebellum. In children as before mentioned, it is quite rare in this location, although one may be safe in estimating the percentage here as compared with all encephalic abscesses, at from 15 to 20; the greater development of the pneumatic spaces in the adult, increasing the predisposition to cerebellar abscess as a complication of mastoiditis.

The symptom-complex of cerebellar abscess, while irregular and at times far from characteristic of the lesion present, may in some cases allow of the grouping of the symptoms, so that four stages of the process may be fairly well distinguished. The first commencing with the symptoms signifying the extension of the infection from the mastoid process to the cerebellum and classified as the initial onset of the local infection. This is followed in the majority of cases by an arbitrary second stage characterized by mild discomfort in which the disease remains latent and usually is not recognized. The third stage supervenes at a longer or shorter period of time and the symptom group of this period is characteristic of a severe otitic intracranial infection, sometimes with symptoms pointing to a localized cerebellar abscess, while more frequently, the pus collection is only localized after the parts have been explored by operative procedure. When, however, this stage is not recognized and the intracranial condition is allowed to continue without surgical relief, the fourth or terminal stage of the disease is an essential sequence, manifested by exhaustion, coma and the gradual death of the patient, or by sudden death from rupture of the abscess into some vital portion of the brain axis.

The initial or formative stage of cerebellar abscess, presents no definite signs as regards the localization of the disease, but the usual symptoms present at this time are those of an acute extension of the mastoid suppuration to the intracranial contents and are usually more characteristic of a sinus thrombosis or a localized area of meningitis, than of a cerebellar affection. A temperature that is already high as a result of the preexisting mastoiditis, becomes a degree or more so, the pain over the mastoid region becomes more severe and may extend back over the occipital region, while vomiting may occur once or twice and then disapper or the symptoms may increase in severity and operative interference be indicated on account of the associated morbid pathology. In a large majority of the reported cases, however, the onset of the intracranial complication, if acute, as here described, was unnoticed, or the infection was gradual, probably covering a period of many weeks or months and passing into the second or latent stage, with a subsidence of any of the acute symptoms that might have been present.

Even more so than in the first stage are the symptoms at this time indefinite and often not of sufficient prominence to attract attention to the aural disease as the cause of the gradual failing in health, with frequent periods of intense headache, varying anorexia, more or less depressed mental condition and fairly well marked aprosexia. If a thorough examination were made at this time, an intracranial lesion at least would be suspected, but unfortunately such is not the case and if the patient seeks advice at all, he is usually treated for some vague general condition and an opportunity is lost, which cannot be regained. Such a case came under my indirect observation, several years ago, in a young man of twenty years. He had been in previous good health except for a suppurating right otitis which discharged at irregular intervals, but not enough to cause him any concern. Then the mastoid became painful and swollen, but under local medical treatment by his family physician, soon disappeared and nothing further was thought of it. It was noticed, however, that he gradually began to lose weight, to complain of frequent occipital headache and to have attacks of nausea and vomiting. His mental condition became dull and he would deliberate in answering even a simple question for several minutes before he gave a reply. This continued for several months, during which time he was taking medicine for a supposed gastritis and finally the symptoms enumerated became so marked, that he was referred to a hospital for a further study of his condition. Seventy-two hours later he died from a large cerebellar abscess which had ruptured into the ventricle, as shown by autopsy.

The third stage like that of the others, of course presents no fixed boundary lines, the transition from one to the other being gradual and usually not recognizable, but for purposes of study, these cases admit of some differentiation of symptom

groups with their pathologic stages. At this time the full complement of symptoms have become well developed, and, according to v. Bergmann, can again be profitably subdivided into three groups: the general symptoms; those due to pressure and local pathologic changes; and the localizing symptoms.

Of the general symptoms. physical weakness usually becomes more pronounced as the abscess develops and the muscular asthenia is especially marked on the same side as the pus collection, being chiefly confined to the arm. The muscular weakness may also be evident by the conjugate deviation of the eyes toward the unaffected side, from asthenia of the ocular muscles and not from direct special nerve involvement. This muscular atony, whether local or general, develops most insidiously and may be the first symptom noted; its importance in connection with other symptoms being considerable as indicative of a brain abscess. A gradual impairment of the appetite, sometimes amounting to complete anorexia, may also be present, but in conjunction with a coated tongue and a peculiar yellow color of the skin, is indicative only, like the majority of the symptoms, of a septic intracranial condition and like those present in many grave diseases, is dependent upon the gradual absorption of septic material and its resultant action on the general organism.

The symptoms due to pressure and local pathological changes vary in almost every individual case, but the presence of headache is fairly constant in all, usually being the earliest and most conspicuous symptom. It is occipital in location and while very intense, is increased by pressure or percussion especially over the region of the abscess. Generally constant, at times it is not so severe, but again becomes almost unbearable. Rarely it may involve the frontal region and then of course, greatly interferes with the recognition of the pus collection, but as a rule it is situated in the former position, being duller in character and more limited in extent than that due to other intracranial lesions. Sometimes it may be the only practical symptom of importance for a time, as in a case reported by Heiman, of a man of twenty-four years, with sudden onset of headache increasing in intensity, following the suppression of an aural discharge. No characteristic symptoms were present but in addition to the headache he had some fever and pain in the ear. Death occurred within twenty-four hours after the beginning of the headache and the autopsy showed a ruptured cerebellar abscess in the process vermicularis.

Nausea and vomiting are almost always present but are not necessarily characteristic of cerebellar abscess. In connection with other symptoms and especially with unsteadiness in gait, vomiting may assume more or less of a characteristic aspect and then depends to a great extent on pressure exerted upon the middle lobe of the cerebellum. In connection with dizziness, vomiting has also been of great value in making a diagnosis as shown by Green and Crombie. Vertigo is present in nearly all cases and may be associated with a loss of the sense of equilibrium, the patient presenting a staggering gait. Or in the sitting posture the head may fall forward, then turn towards the unaffected side and continue to move with pendulum-like oscillations, this condition is extremely rare however and in such cases, the vertigo is a prominent symptom, being constantly kept up by the head movements.

The mental functions are usually disturbed and at first somnolence is common, but may be in isolated instances replaced by a condition of sleeplessness, this being the only symptom for which the patient seeks advice. The mental state may often furnish valuable information especially when the patient is irritable at times, while at others he may be inattentive or the hebetude as the disease advances, gradually giving way to stupor. Sluggish cerebration may be quite noticeable and the peculiar condition may exist in which, if a simple question be asked the patient, he will not appear to have heard it and no notice will be taken for a time, then in a few minutes he will begin to answer slowly and deliberately, dwelling carefully on each word as it were, but the final answer will be correct.

The temperature at this stage is of much value as a symptom of brain abscess, but gives no information as regards the site of the pus collection. Oscillations of the temperature are as a rule not present, and it remains fairly constant at or near 99° F. after the initial rise due to the primary extension of the disease to the cerebellum. Very often it is normal or subnormal and when the latter is continuous in connection with an aural lesion, the presence of intracranial abscess may be fairly well assumed. In some cases the diagnosis in great part will hinge on this symptom, a case in point being that seen by Morris, where the low temperature in connection with a subnormal pulse rate, led to the diagnosis of a brain abscess, but precise localization was impossible. The autopsy showing a cerebellar abscess on the same side as the diseased ear. The pulse is also slow, regular and of fair volume and remains unchanged in uncomplicated cases, but it may be normal and occasionally become intermittent. An instructive case in this connection being seen by Schwartze, in which the prominent symptoms were intense, intermittent pain in the occiput, nausea, vomiting, subnormal temperature, irregular pupils and a rapid pulse of 100 to 150. No operation was performed, as the rapid pulse was considered incompatible with a cerebellar abscess, but the necropsy showed an abscess in the right cerebellar hemisphere, with circumscribed leptomeningitis and pachymeningitis interna and the cause of the pulse rate was readily explained by the finding of a chronic endocarditis. Respiration is usually regular, but often slower and more shallow than normal.

Of the minor symptoms of this class, which are variable and may or may not be present in the given case, cervical contracture is one of the most

frequent, the muscles of this region may also present varying degrees of rigidity and from the same cause, clenching of the teeth may occur infrequently. The tongue may be protruded toward the unaffected side, making the speech slow and indistinct, if it be swollen. Rigors occur infrequently, the bowels are constipated and the knee-jerk may be increased on the same side as the brain lesion. Walker reporting a successful case following operation, in which the only characteristic symptom was the increased knee-jerk.

The localizing symptoms are of little value in this affection, although Burnett states that double optic neuritis is likely to be present, because the abscess readily interferes with the circulation of the cavernous sinuses and the ophthalmic veins. Very often this may be the only positive symptom, but again the eye-grounds may remain normal even in fatal cases, as has been shown by Woodward. Hansberg believes that localization of a cerebellar abscess is almost impossible from focal symptoms, but he considers bilateral choked disks as the only sure sign, while Gradenigo states that lesions of the optic papillæ are observed in about one-half of these endocranial complications and they should be carefully sought for, as they are frequently the first and only indication of intracranial involvement. He further states that the papillitis affords no information in regard to the location of the lesion.

Nystagmus and paralysis of the sixth nerve may point to a lesion in this locality, the paralysis of the abducens producing strabismus, as in the cases seen by Barling, one of which had this nerve affected, while both presented horizontal nystagmus. The pupils may vary in size, the more dilated being on the side of the abscess and there may be inability to close the eyelids, with facial paralysis on the same side; this and paralysis of the oculomotor nerve may be the only localizing symptoms. Should facial paralysis occur it will probably be due to pressure of the abscess on the nerve in the pons, but as is frequently the case, a large abscess may be present and yet produce no localizing symptoms. Cerebellar ataxia and vertigo are usually due to lesions of the worm, while if the medulla be affected to a point low enough, the varied paralyses may be unilateral and on the same side as the abscess, if, however, the pons be involved more on the side of the abscess, the paralysis will be apparent on the opposite side. Macewen has well said that in all cases the symptoms of cerebellar abscess "depend upon the level of the pressure," but one may conclude that local symptoms are not usually present unless the abscess develops to the point of invading the middle lobe or the peduncle, when the so-called cerebellar ataxia develops.

The terminal stage is one of gradual death from exhaustion and coma; or sudden, depending upon the direction in which the abscess ruptures. When the pus breaks into the ventricle, the condition changes at once, the temperature rises suddenly to 103° or 105° F., the pulse becomes rapid, respirations are frequent, while there are muscular twitchings, convulsions, coma and death. When, however, the abscess ruptures upon the free surface, a secondary, inflammatory reaction ensues leading to acute purulent leptomeningitis. The temperature becomes high and the pulse rapid and the symptoms of meningitis are fulminating, ending rapidly in the death of the patient.

The complex of symptoms, as seen in cerebellar abscess, is well exemplified in a study made by Green of four cases, in which headache as a prominent symptom was bilateral in two, frontal in one and vertical in one. No occipital headache being present in any of the cases. Paralysis of the abducens occurred in two, of which one was bilateral and one unilateral and on the opposite side from the ear disease. Optic neuritis was seen in only one case. One had general septicemia, while in the others, fever was not apparent at any time. Nystagmus on looking away from the diseased ear was present in but a single case. The abscesses were in the anterior lower portion of the cerebellum on the same side as the ear disease and in all the cases an accurate diagnosis before the operation was impossible. Leucocytosis was found in those in which the examination was made for this phase, but as the author well states, it is found in nearly 80 per cent. of uncomplicated tympanic suppurations and therefore possesses no diagnostic value in this connection.

Hammond, in five cases, based his diagnosis upon the following complex of symptoms which he regards as characteristic, being confirmed by operation or autopsy. Present or previous suppuration in the sinuses adjacent to the brain, rapid loss of flesh and strength, rapid pulse and high temperature for the first seventy-two hours, followed by a decline in the temperature and an increase in the heart action. There is also pronounced flexure of the extremities, progressive dilatation without fixation of the pupils, semi-unconsciousness with uncontrollable restlessness and a peculiar indisposition to obey any requests that may be made. Glycosuria, slow respiration and a tendency to go toward one side are present, while there is also a swinging of the hands toward one side, with an entire absence of paralysis.

The two groups show very well the multiplicity and confusion of symptoms, and it is only by the careful study of the individual case from all sides, that a diagnosis can be made and the value of the symptoms even approximately estimated.

The pathologic changes in the primary bone infection consist of an area of necrosis at the point where the plate of bone separating the sigmoid sinus from the mastoid cells is extremely thin, so that erosion, as shown by Bacon, is apt to be at this point. The bone becomes discolored, softened and granulation tissue develops, while a collection of pus is found either between the sinus and bone, or behind the sinus in the direction of the occipital bone and by means of the small veins or arteries the infection is carried into the cerebellum. Or, as before mentioned, there is a direct contact between the sinus and the cerebellum, by means of the dura. This phase of

the necrosis, as seen in the sigmoid groove, may be of great diagnostic value, as indicating the course of the infection toward the cerebellar region, when an exploratory operation is performed in the absence of definite localizing symptoms.

Wherever the abscess is situated, its development is usually accompanied by that of other intracranial complications, as sinus phlebitis or a small limited area of meningitis, and it is usually single, but they may be multiple and involve the cortex or deeper regions on one of both sides. Even when single, as is more frequent here than in cerebral abscesses, a smaller pus collection may be found in close conjunction with it, or an abscess here may coexist with one in the cerebrum. As the majority of abscesses in this location are chronic in character, they become capsulated by a definite lining membrane, varying in thickness from 1 to 5 mm. and although this acts as a barrier to the further spread of the infection, yet in some instances, this conservative barrier is absent, the abscess being surrounded only by a zone of softened brain substance. Whether encapsulated or not, there is always present the tendency toward greater growth and the size is extremely variable, some containing but a few drops of pus, while from others, three or four ounces may be evacuated, a case in point being seen by Woodward, in which the entire white matter of the left hemisphere of the cerebellum had broken down into an abscess cavity. The pus found in the abscess does not usually differ from that found at the original focus of infection and it may be thick and yellow, or thin, greenish and offensive, at the same time containing particles of broken down cerebellar tissue.

The following case of cerebellar abscess was seen in consultation a short time ago and well shows the difficulty of diagnosis:

M. J., male, age fourteen years, presented the following history. The right ear had been discharging for two years following an attack of la grippe. He had been under treatment more or less constantly for the otitis, with the cessation of the discharge at times, but with its recurrence after attacks of coryza. He has lately complained of occasional dull pain over the mastoid and has become irritable, with, in addition, a considerable loss of weight. The discharge at times would become excessive in amount and the pain in the head would then become greatly aggravated. At the time I first saw him, the pain and restlessness were marked, the mastoid was not swollen, but pressure produced flinching. There was a small perforation low down in the drum, with considerable purulent discharge and a macerated appearance of the canal, but no definite areas of redness or swelling. The temperature was 98.6° F., the pulse 74 and the respiration normal. The middle ear was cleansed and drained with a small gauze wick, an ice bag was placed over the mastoid and sedatives were given internally. He only slept a few minutes at a time during that night and on the following day the symptoms had increased, although the appearance of the parts remained apparently unaltered. No other symptoms than those mentioned were present and the eye-grounds remained unchanged.

Operation was then advised and under ether anesthesia, the mastoid was opened. The cortex was exceedingly dense and no pus was found until the antrum was reached, which contained a few drops of purulent matter. Free communication was established with the tympanic cavity, a small patch of necrosis was removed, the wound was dressed in the usual manner and an improvement in his condition became noticeable in a few hours, the headache ceased and he had a good night's rest. This improvement continued for a week, when he became restless, was constantly annoyed by trivial matters and his temperature, which had been normal, fell to 97.2° F., while the pulse was 64. I then saw him again and found him very irritable, the right pupil was dilated, he complained of the light and the optic papilla was slightly swollen, while he was losing flesh and strength rapidly. The mastoid wound was to all intents normal, but was redressed, and when I saw him on the following day, he was semi-conscious, there was a slight stiffness of the nucha and a diagnosis of brain abscess was made, supposedly located in the cerebellum.

On account of his grave condition, it was deemed best to immediately explore the cerebellum and delay opening the mastoid wound, as it seemed perfectly healthy. A trephine opening was then made in the usual situation over the cerebellar region and when the button of bone was removed the dura was seen to be somewhat inflamed. A small incision was made in the dura and a hollow needle inserted into the lobe of the cerebellum, when, after encountering a dense encapsulating wall, five drams of pus were evacuated. The abscess cavity was washed out, drained and the usual dressings applied. The patient seemed to rally well from the operation, but died twenty-four hours later from apparent asthenia. A partial autopsy only was allowed, but it showed that the sinus was involved and that the infection had reached the cerebellum through the small veins, from a minute purulent and necrotic focus well back on the inner mastoid wall.

Of all the intracranial complications resulting from mastoiditis or other suppurative affections of the organ of hearing, cerebellar abscess is undoubtedly the most difficult to localize. And, as has been shown by Gradenigo, neither optic neuritis, lateral nystagmus, titubation, vertigo, nor rigidity of the nucha are special symptoms. In many cases the location of the lesions one finds in the course of a mastoid operation with symptoms of endocranial abscess such as caries of the sigmoid groove, with thrombosis of the sinus, will be the only indication that the pus collection is probably situated in the cerebellum. In the cases where a diagnosis is made in advance of operation, it is only by the careful study of the complete symptom-complex, as it is almost impossible to do so from focal symptoms alone, and when recognized early it is more often by a process of ex-

clusion, rather than by any definite signs or symptoms.

The difficulties of recognition are also often enhanced by the frequent presence of complicating factors such as pyemia, sinus thrombosis or meningitis. In sinus thrombosis, rigors, high temperature and increased heart action, are almost always present, while in leptomeningitis there is high temperature, rapid pulse and marked irritability of the special senses as predominating symptoms. Heiman believes that if due consideration be given to all the symptoms, an accurate diagnosis can be made in three-fourths of the cases, and while it is not of much value to place reliance upon single symptoms, yet in many cases one can be fairly sure of the presence of a cerebellar abscess, when certain groups of symptoms are studied in relation with one another. Cerebellar abscess may materially lower the temperature in the presence of a complicating sinus thrombosis and when a case of suspected intracranial complication is seen, this factor should be thought of. Achard and Bellanger believe that paralysis of the arm of the affected side with muscular weakness of the legs, exaggerated patellar reflex on the same side and conjugate deviation of the eyeballs toward the unaffected side, are especially indicative of this condition. And, as has been suggested by Church, in this connection, the X-rays may be of service here, the same as they have been of use in cerebellar tumors, but no cases have been recorded as yet of their value in this field.

In the differential diagnosis between temporosphenoidal and cerebellar abscesses, the usual error is to mistake the latter for the former, but the localizing symptoms of cerebral abscess are usually present sooner or later, and if a decision cannot be made, an exploratory operation will be of great help. Examination of the visual field may yield valuable information, but choked disk alone simply indicates an intracranial lesion and is not characteristic of an abscess in this locality and does not explain the nature of the lesion. Grant reports two interesting cases, in one the diagnosis was rendered more difficult by the presence of labyrinthine symptoms, while in the other, both ears were affected and rigors were very prominent, due to other complicating factors. Disease of the labyrinth and semicircular canals may account for some of the symptoms as in a case reported by Bacon, with slow pulse, vertigo, vomiting, deafness, headache, etc. In this case a cerebellar abscess was supposed to be present, but the operation showed caries of the semicircular canals. In Menière's syndrome, the headache is neither so violent, persistent, nor localized, and while in cerebellar abscess the somnolence and stupor may increase as the diseases progresses, this is not the case in the former.

Subnormal temperature is often present after influenza or other depressing diseases, but it is usually of short duration and not continuous like that of cerebellar abscess, while rapid emaciation may be due to the same causes, but when, in addition, the temperature is low, and there is constipation, sluggish mental action and localized pains in the head, the diagnosis is strongly in favor of the cerebellar lesion. The cerebellar gait, so-called, while of strong presumptive evidence, may be due to irritation of the auditory nerve or semicircular canals, as has been shown by Starr, and a similar syndrome be produced by defective aural drainage, without the presence of an abscess at all, the symptoms being relieved after the defective drainage has been rectified. Tumors of the cerebellum, such as glioma, tuberculous, etc., may produce symptoms very similar to abscess, but the differentiation can usually be made by the presence of other factors resulting from pressure on surrounding parts.

The early stage of the abscess formation, corresponding to the initial infection from the mastoid, may last only for a day or two, or a week at the utmost, while after these acute, primary symptoms have subsided, it may remain latent for a number of years, being incited to renewed activity by the development of a new inflammation of the original focus of infection. One, and possibly two, extraordinary cases have been reported, in which the abscess spontaneously evacuated through a carious opening in the sigmoid groove, but such a result seems hardly credible and one should never, for a moment, anticipate such a termination. The usual tendency of the abscess, if not operated on, is to cause death by pressure edema of the surrounding parts, or to perforate externally with resulting meningitis; or internally, into the fourth ventricle, with immediate death from cardiac and respiratory paralysis.

While the patient will invariably die without operation, yet the success obtained in this field has been so promising that one is justified in operating as soon as the diagnosis is made, but in some cases one may wait a short time for the development of any symptoms more closely indicating the location of the abscess.

As the only treatment for cerebellar abscess is surgical, the primary focus in the mastoid should, as a rule, first be exposed and the tract of the infection traced, if possible, to its results further back. Bergman states that with a history of ear disease, persistent sleeplessness and a continuous temperature of 99° F., one is justified in opening the cranium, but the otologist may wait for localizing symptoms or until a condition of hebetude is well pronounced, before interfering. The advantages of delay are, that the location of the abscess may be more apparent later on, while the danger to the patient is not materially increased. As pointed out by Bramwell, in cases where the diagnosis is uncertain, the operation adds but little to the risk.

It is always advisable, after cleaning out the mastoid, to expose the sigmoid sinus, while to get at the inner surface of the mastoid, the posterior portion of the bone can be removed until the dura is fully exposed for at least 2 cm. behind the lateral sinus; exploration can then be made in the cerebellum in any direction to the depth of 3½ cm. inside of the lateral sinus. In exploring, in

the absence of a precise diagnosis and in the presence of grave symptoms, it is best not to incise the dura, as the hernia which sometimes follows is a serious complication and should not be incurred, unless in the presence of immediate danger or when the diagnosis is probable. Intervention should, at times, be limited to exploratory puncture and aspiration. Gradenigo in one case by this method, aspirated fragments of cerebellar tissue and excluded a deep abscess, without in any way injuring the patient.

The general routine of procedure in these cases has been well mapped out by Pritchard, and he advises to first open and explore the mastoid cells and antrum. Failing here to find sufficient disease to account for all the symptoms, open the cranium in the groove for the lateral sinus and so obtain access to both the middle and posterior fossa. Then examine the lateral sinus and search for both extra- and intra-dural abscesses. Treat the sinus as indicated by any pathological changes present, and if the sinus is not thrombosed, explore the cerebral substance above and the cerebellum below the level of the horizontal groove of the lateral sinus. If there is an urgent need of operation and the diagnosis is fairly established, the brain cavity may first be opened over the supposed site of the abscess and the mastoid operation performed later. But the aural lesions should receive attention immediately thereafter, or, if the condition of the patient is such that this is impossible, the mastoid should be operated upon subsequently. But it should always be remembered that the aural lesion is the original cause of the brain disease.

When the mastoid is sclerosed or eburnated, or for any reason that will make the ordinary operation inadvisable, the skull may be opened from 5 to 7 cm. back from the edge of the osseous meatus, just below the superior curved line of the occipital bone and on a line drawn from the inferior osseous edge of the orbit to the occipital protuberance. The technic for opening the skull here is the same as in other situations, but the pus in a cerebellar abscess is apt to be so thick that it will frequently not pass through the ordinary needle, and after the dural flap has been raised, it is best to use a large grooved exploring needle. If pus be found, the cerebellum is freely incised with a probe-pointed bistoury and the abscess cavity is evacuated and a proper drain inserted.

45 East Sixtieth Street.

BIBLIOGRAPHY.

1. A. D. McConachie and C. W. Hartwig. Journal American Medical Association, April 8, 1899.
2. J. H. Woodward. New York Medical Journal, June 11, 1898; Archives of Otology, January, 1896.
3. Dench. Diseases of Ear.
4. Bryden. British Medical Journal, March 29, 1890.
5. Harrison. Lancet, October 1, 1892; Lancet, July, 1894.
6. Hutton and Wright. Lancet, August 4, 1888.
7. Knapp. Archives of Otology, 1892; *Ibid.*, April, 1893.
8. Macewen. Archives of Otology, 1889; Occidental Medical Times, November, 1896; British Medical Journal, November 16, 1895.
9. Milligan and Hare. British Medical Journal, Feb. 1, 1890.
10. Stewart. Lancet, August 25, 1888.
11. Koerner. Archiv. f. Ohrenh., Bd. 29, 1890; Ann. des Mal. de l'Orielle, September, 1894; Die otitische Erkrankungen des Hirns, der Hirnhäute und der Blutleiter, 1894.
12. Hardie. Annals of Otology, No. 6.
13. Schmiegelow. Northern Medical Archives, No. 17, 1898.
14. Starr. Treatise on Brain Surgery; Medical Record, December 11, 1897.
15. B. E. Fryer. Kansas City Medical Record, Nos. 8 and 9, 1899.
16. Zaufal. Archives of Otology, April, 1895.
17. Bishop. Diseases of Ear, etc.
18. Bacon. New York Eye and Ear Infirmary Reports, January, 1897; American Journal of the Medical Sciences, August, 1895; Manual of Otology.
19. Quervain. Sem. Med., August 20, 1897.
20. Dean. British Medical Journal, July 30, 1892.
21. L. Maunier. La Presse Med., November 6, 1895.
22. T. Barr. Archives of Otology, Vol. 24, Nos. 3 and 4; Ann. des Mal. de l'Oreille, January, 1896.
23. D. B. St. J. Roosa. Post-Graduate, April, 1901.
24. Barr and Nicall. British Medical Journal, February 11, 1901.
25. J. O. Green. Transactions American Otological Society, July, 1898; American Journal of the Medical Sciences, April, 1899.
26. H. E. Jones. British Medical Journal, October 22, 1898; Liverpool Medico-Chirg. Journal, January, 1895.
27. Moos. Zeitschr. f. Ohrenh., Bd. 25, 1894.
28. T. S. Kirkland. Australasian Med. Gazette, July 20, 1898.
29. Buck. Diseases of Ear.
30. Gruber. Diseases of Ear.
31. Gradenigo. Ann. des Mal. de l'Oreille, January, 1896; Ann. de la Soc. Med. Chir. de Liege, November, 1898; Ann. des Mal. de l'Oreille, September, 1898.
32. Picque and Ferrier. Ann. des Mal. de l'Oreille, December, 1892.
33. J. M. Ray. Laryngoscope, August, 1897.
34. Jansen. Ann. des Mal. de l'Oreille, January, 1896.
35. F. Allport. Journal American Medical Association, October 22 to December 24, 1892.
36. Randall and DeSchweinitz. American Text-book of Diseases of the Ear, etc.
37. Dieulafoy. Presse Med., January 27, 1899.
38. Woods. British Medical Journal, November 16, 1895.
39. J. B. Crombie. Pennsylvania Medical Journal, July, 1899.
40. Heiman. Gould's Year Book, 1896; Ann. des Mal. de l'Oreille, January, 1896.
41. Burnett, Ingals and Newcomb. Diseases of the Ear, etc., 1901.
42. v. Bergmann. Die chirurgische Behandlung der Hirnkrankheiten.
43. W. Milligan. British Medical Journal, October 22, 1898.
44. L. J. Hammond. Archives of Pediatrics, June, 1899.
45. Gilbert Barling. British Medical Journal, June 12, 1897.
46. Hansberg. Archives of Otology, January, 1895.
47. Burnett. University Medical Magazine, March, 1896.
48. H. S. Walker. British Medical Journal, March 6, 1897.
49. H. Schwartze. Arch. f. Ohrenh., December, 1896.
50. Morris. MEDICAL NEWS, October 6, 1894.
51. J. F. McKernon. Laryngoscope, June, 1900.
52. R. Müller. Deutsche med. Woch., December 8, 1898.
53. Dundas Grant. Journal of Laryngology, Rhinology and Otology, August, 1900.
54. T. R. Pooley. Medical Record, August 15, 1896.
55. A. Church. American Journal of the Medical Sciences, February, 1899.
56. J. G. Risler. Journal of Nervous and Mental Disease, August, 1894.
57. Cleveland. Archives of Otology, April, 1895.
58. Drummond. Lancet, July 28, 1894.
59. Pritchard. Diseases of the Ear.
60. Bramwell. Edinburgh Medical Journal, June, 1894.
61. E. Waggett. Journal of Laryngology, Rhinology and Otology, March, 1900; British Medical Association, Section of Laryngology and Otology, August, 1899.
62. Winter and Deanesley. Lancet, December 8, 1894.
63. B. A. Randall. Journal American Medical Association, November 11, 1899.
64. Percy, Jakins. Journal Laryngology, Rhinology and Otology, October, 1898.
65. Luc and Grant. British Medical Journal, November 16, 1895.

A DISCUSSION OF SOME COMMON FORMS OF LIVER DISTURBANCES.*

BY A. P. STONER, M.D.,

OF DES MOINES, IOWA.

THE liver is not only the largest, but from the standpoint of amount and variety of work, it is easily the most important gland of the body. The workings of the delicate and complicated mechanism of the liver cell, to a large degree, still defies the acutest and most refined observations.

It is the great refinery and safeguard of the organism against unassimilable and poisonous substances, where the detritus of metabolism from all the tissues of the body is discharged and prepared for excretion; the laboratory wherein the

* Read before the Des Moines Pathological Society, April, 1903.

blood is purified, and the worn out hemoglobin molecule, after being robbed of its iron, is cast out with other débris, as bile and urinary pigments.

It is one of the principal storage rooms of the body, wherein the carbohydrates are transformed and shelved, to be used in the interim of digestion.

While the general pathology of the liver has been well worked out, much of the functional and clinical pathology yet remains within the chrysalis of ignorance. As only the commoner forms of liver disturbances are to be discussed in this connection, mention will only be made of such conditions as are likely to be met by the practitioner in temperate climates.

Hyperemia.—"Congestion of the liver" is a term that has so long been wielded by ignorant pretenders in the practice of medicine that one might be excused in questioning its existence as a real pathological entity.

A noticeable degree of hyperemia of the liver is occasioned by the ingestion of an ordinary meal. Highly spiced foods and alcoholic beverages produce excessive hyperemia. This engorgement, however, soon passes away, unless the dissipation be long continued, in which case structural changes may ensue. More or less congestion of the liver may accompany valvular heart disease.

Two conditions, said by many authorities to produce hyperemia of the liver, viz., sudden suppression of the menses and hemorrhoidal bleeding, both of which probably have very little effect upon the organ. A few days before the menstrual flow begins, the activities of all the organs are augmented. Nervous and vascular tension is increased; the heart's action is increased in strength and rate, and a general vascular turgescence is manifested in all the blood-vessels. The liver is doubtless at this time also hyperemic. As the flow approaches, however, these activities begin to abate, and so continue until near the close of the flow when the minimum is reached. As the amount of blood lost per twenty-four hours averages only from 25 c.c. to 50 c.c., the mere oozing of blood at the menstrual epoch *per se* can have little or no effect upon the blood pressure for the loss is probably compensated for as rapidly as the blood is lost.

The uterine blood-vessels have no direct connection with the portal system, therefore a sudden stoppage of the flow from the uterus could not affect the liver by any damming-up process.

As to hemorrhoidal bleeding, while there is a direct communication between the hemorrhoidal veins and the liver, the first effect produced upon the liver by hemorrhoidal bleeding would be that of anemia, and a sudden checking of the hemorrhage could scarcely do more than set about the normal conditions. In this connection, it will be remembered that hemorrhoids are often the products of portal engorgements, in which instance the liver may be hyperemic during and after the hemorrhage, and a wrong impression may be obtained upon examination after the hemorrhage is checked. The overloaded portal system invites sluggish absorption, the capillaries of the intestines become congested and a general catarrh of the mucous membrane results.

Stagnation of blood in the smaller vessels encourages thrombosis and as a result of infected emboli, suppurative infarcts may occur in the spleen, bowel, stomach or gall-bladder. In the early stages of hyperemia the liver is uniformly enlarged. As the process advances the liver cells atrophy, leucocytes infiltrate the lobule, and foci of fatty degeneration and pigmentation is the ultimate result. The marbled appearance at this stage, has given it the name of "nutmeg liver."

Fatty infiltration and fatty degeneration afford an interesting study for both the pathologist and clinician. It must be remembered that a certain amount of fat is normally found in the liver cells, it being formed from the stored carbohydrates probably by a fat enzyme in the liver, which converts a portion of the glycogen directly into fats, and it is with some difficulty that we are able to distinguish fatty infiltration of morbid nature from that of the normal product.

Moreover, it is not always easy to differentiate fatty degeneration from fatty infiltration. As this, however, is a matter of technic, it will not be indulged in further at this time. Many drugs are known to be productive of fatty degeneration, viz., phosphorus, arsenic, mercury, camphor, chloroform, etc. Phosphorus poisoning, thanks for the stringent measures now enforced in the manufacture of lucifer matches is nowadays rarely a cause. Fatty infiltration is often found in those who gormandize in food and drink and lead sedentary lives. Overfed infants, especially if carbohydrates form the bulk of the diet, are liable to fatty liver. In such cases there is undercombustion of fats and carbohydrates, taken as food.

When large quantities of alcohol are imbibed, the oxygen is used in burning up the excess, and fatty infiltration may result. In this connection it must be remembered that the liver is a fat conservator. The organ, however, has not acquired due credit for this function. Indeed, it has been spoken of as rather a paradoxical fact, that fatty infiltration and degeneration are frequently found in the cachexias, such as tuberculosis, chronic suppurative bone disease, cancer, etc. Much of the fatty infiltration found in these affections, in my opinion, may be a normal conservative process, the fat being merely held in reserve as a final source of energy, and is given up to the system as necessity demands.

So long, however, as the genesis of fat itself, both from a physiological and pathological standpoint remains undetermined, these problems must remain *sub judice.*

Cirrhosis of the Liver.—While many factors seem to be responsible for cirrhosis none will produce the changes met with except they be long continued. Alcohol, for instance, may be taken in large quantities for a considerable period of time, without any apparent harmful effect upon the liver tissues. It is only when it is long continued that pathological changes are manifested.

Changes in all probability do occur, but they are recovered from, and the precicatricial stage averted. Recent investigations have proved that the liver tissue possesses a remarkable capacity for regeneration.

There is reason for the belief that all liver cirrhosis is the result either directly or indirectly of infection. Especially is this true of the biliary or obstructive type. That alcohol and other intoxicants act in a manner to lower the cell resistance cannot be successfully denied, but if it were the specific cause of liver cirrhosis, we would at all times expect to find the disease present in chronic alcoholics, which is by no means borne out. It is well known that the normal liver harbors bacteria, and the avenues by which infection may reach the liver are so many that we may expect to find either bacteria or their toxins quite constantly present in the organ in health and in disease. It is not essential, however, that the propagation of bacteria takes place within the liver, for this process may occur in other organs of the body, but their toxins nevertheless readily reach the circulation and thus are transported to the liver, and in their effort to eliminate or render them harmless the liver cells finally fall martyrs to the system, in whose interest they have been struggling.

Fibrous and connective tissue fills in the gap caused by the broken down cell, and cirrhosis is the result.

In biliary or obstructive cirrhosis the parenchyma of the gland is destroyed as a result of the closure of the excretory canal. Such conditions may follow congenital absence or malformation of the hepatic duct, in which case the toxins are retained in the liver.

Other cases are doubtless due to direct infection and may take place very early in childhood or infancy. According to Lovett Morse (*Medical Record*, September 20, 1902), all forms of cirrhosis met with in the adult also occur in childhood. There are also forms peculiar to childhood. The disease is not common but occurs oftener than is generally supposed. The ordinary forms usually occur between the ages of nine and twelve years. All the etiological factors of adult cirrhosis play a part in the causation of the disease in childhood. Congenital syphilis plays a frequent rôle.

Alcohol is undoubtedly responsible for a large number of cases of childhood cirrhosis. Unsuspecting and ignorant parents who permit their children daily to indulge in the family wine cup, have no realization of the true dangers lying in wait.

That abnormal fermentation in the bowels is responsible for a large percentage of cirrhosis in children as well as in adults there is little doubt. The fact that cirrhosis of the liver has been found in several children of one family would lead to the conclusion that the cause may sometimes lie beyond the natal state. Toxic matter circulating in the blood of the mother undoubtedly may affect the fetus in utero, leading ultimately to liver infection.

But little light has been shed upon the true nature of the pigmentary cirrhoses. Owing to their being so often met with in diabetes, some investigators have sought to establish a connection between them. For a long time the glycogenic function of the liver, as defined by Claude Bernard, remained unquestioned in its entirety. Reasons, however, are now apparent, which demand a slight modification of this theory. This hypothesis assumes that glycogen is stored up in the liver and is given up to the system after being converted into a monosaccharid, whence it was originally obtained. The effect of these transpositions being to maintain a definite percentage of sugar in the blood, any excess of the normal proportion of dextrose circulating in the blood, according to this hypothesis, stimulates the liver cells to convert and store the carbohydrates as glycogen in the liver, and on the other hand, a diminished percentage creates tissue hunger, and causes the insoluble disaccharid to be transformed into the soluble, and in this wise nourishes the system with a definite proportion of carbohydrates.

That these processes actually take place is believed to be true, but it has been further shown that glycogen may be obtained from other sources, and that at least a part of the molecule is converted into fats. This brings us to the part which the liver may play in diabetic affections. Any distubance of the glycogenic function of the liver will permit an excess of dextrose to circulate in the blood. The kidney tolerates only the normal percentage of sugar in the circulation, and when any excess is reached, it is promptly excreted in the urine. Pavey believes that glycogen is converted into proteid, and that the nitrogenous part of the proteid molecule acts as a carrier for it.

He contends that one of the chief functions of glycogen is that of a proteid sparer, and that as a result of this office of the liver cells passing into abeyance, diabetes ensues.

This furnishes a satisfactory explanation of the persistence of sugar in the urine in diabetes, after cutting off all carbohydrates diet. If the proteid molecule is, as some physiological chemists assume it to be, a union of a carbohydrate with a nitrogenous rest, we can readily see how the vitiated metabolism of the liver cell may, by a simple reverse process, set free dextrose from the circulating proteid.

THE BEST METHOD OF DEALING WITH THE STUMP IN APPENDICECTOMY.

BY HOWARD LILIENTHAL, M.D.,
OF NEW YORK;
ATTENDING SURGEON TO MOUNT SINAI HOSPITAL, NEW YORK.

THE simplest way, which has proven efficient, must be conceded to be the best. Yet on theoretical grounds many surgeons have found fault with this simple method and have advised the employment of numerous other forms of technic, all of them more or less complicated, several of them

very wasteful of time and some of them distinct sources of additional danger to the patient.

While it is not my intention here to go into the criticism of the other methods, I desire to answer at least two of the objections which have been urged against the ligation and cauterization of the stump.

It has been stated, evidently on theory and not from clinical observation, that when the appendix is ligated mucous surfaces are brought in contact and that inasmuch as mucous membranes will not adhere to each other, the stump thus formed is insecure. Now, as a matter of fact, when a tight ligature is placed around the root of the appendix the mucous lining is crushed and destroyed at the point of constriction. For all practical purposes we may consider that the mucous membrane is cut by the ligature which is held in place by the tough submucous fibrous tissue and the peritoneum. I have shown this to be the fact by observations on vermiform appendices examined immediately after their removal, an additional ligature having been applied before the ablation for the purpose of this study and I have also examined several appendices sectioned longitudinally after hardening them in alcohol. The recent specimens demonstrated clearly not only that the ligature was absolutely secure but that the mucosa had been cleanly cut, although theoretically it had been pulpified by the constricting ligature. In each case the submucous fibrous coat and the peritoneum were uncut and held firmly. The hardened sections confirmed these observations.

In cases in which there is great infiltration of the walls of the appendix with friability it is best to crush bluntly the rigid root of the organ with a clamp or forceps and then apply the ligature to the crushed tissues. If there is complete gangrene at the base of the appendix, this technic, of course, cannot be employed.

Now, as to the second criticism: Certain writers have maintained that adhesions are apt to form with a stump of the kind I have described. This assertion I feel convinced has also been made on insufficient evidence. It has been my fortune to have the opportunity of examining into the postoperative conditions in a number of cases treated by ligation and cauterization. Three cases of fatal peritonitis examined from three to six days after the operation showed adhesions almost everywhere else but *not* at the stump, which could not be found at all. It had been cast off with its ligature and only a smooth cicatrix on the surface of the cecum remained. In a number of other patients upon whom operations for other conditions were undertaken, months or years after the removal of the appendix, most of them for adhesions when peritonitis had existed at the time of the primary operation, the former site of the appendix was marked by a minute smooth white cicatrix. No adhesion was ever found in this location, no matter how numerous they were in other parts of the abdomen. The stump, formed as herein described, is cast off in from three to six days and with it any temporary adhesion which may have formed disappears. It is therefore my belief that the formation of the stump by the method of ligation is the only way in which adhesions at this point may with certainty be avoided.

The cauterization which for many years I have preferred is that by strong carbolic acid. A minute drop of the 95-per-cent. solution is taken up with a closed artery clamp as ink is taken up with a pen and after protecting the surrounding tissues with gauze the acid is thoroughly applied two or three times to the mucous lining of the stump until the little funnel is completely whitened. In from fifteen to thirty seconds the stump may be dropped back into the abdominal cavity with no danger to other structures which may come in contact with it.

This rapid, simple, safe and thoroughly surgical method is warmly recommended to the profession after the satisfactory test of ten years, in many hundred cases.

766 Madison Avenue.

CHRONIC VILLOUS ARTHRITIS, WITH SPECIAL REFERENCE TO ITS ETIOLOGY AND PATHOLOGY.

BY CHARLES F. PAINTER, M.D.,
AND
WILLIAM G. ERVING, M.D.,
OF BOSTON.

(Continued from Page 980.)

Postoperative Treatment.—The postoperative treatment is fully as important as any which has preceded it. Unless there are indications to the contrary, dressings are not disturbed for one week, when the stitches are removed, and passive manipulation is begun at once.

The cases vary considerably with respect to early restriction of motion, and they seem to vary directly in proportion to the size of the bases of the pedicles from which the fringes depend. In other words, the more vascular the pedicle which connects the villus with the general synovial membrane, the more extensive is the denuded surface after the fringe has been excised, and, where there are a number of these broad denuded areas, adhesion seems to be more likely to occur. These adhesions, however, are very slight, and are readily overcome in most patients without an anesthetic, and, when this is necessary, but one, or at most two, manipulations under gas are required.

Passive manipulation by the patient and active manipulation by the physician should be practised daily during the second week. At the end of this time motion is usually restored to ninety or more degrees. It is then safe to allow the patient to begin to bear weight on the leg, and to encourage him to walk, supported somewhat by a crutch or cane and wearing a compression bandage, such as is made from Shaker's flannel. Daily hot and cold douching stimulates the joint, and facilitates its restoration to normal functional activity.

Some soreness and stiffness persists often for

a longer period than this, but, ordinarily, at the end of the second or third week the active treatment of the joint should be practically completed. Subsequent visits are usually unnecessary.

Pathology.—The appearance of these hypertrophied joint fringes ranges within wide limits. The smaller are of a reddish-gray to purplish color, of delicate dendritic appearance, attached to the synovial lining of the joint by an extremely slender and delicate pedicle. They are present in great numbers, presenting a fungus-like appearance over the entire membrane. Their consistency is very soft and yielding, and their vascularity is especially marked.

At the other extreme are the large, irregular, coarsely lobulated, yellowish fatty masses of 4 to 5 cm. in diameter, often glued by constant inflammation to the synovial lining over a wide area, though the original pedicle is generally to be distinguished. These are usually but one or two in number, and occupy the greater part of the joint cavity. More rare are the fatty masses without any trace on inspection or palpation of fibrous tissue, and the masses of hyaline necrotic tissue or of connective tissue infiltrated with bone or cartilage cells. Between these limits are all shapes and sizes, the pedunculated appearance and rich supply of vessels being the most common characteristics.

On section the tissue even in the larger growths is very rarely of a true fatty consistency. There is always a resistance characteristic of the presence of fibrous tissue in some amount, which in a few instances passes into the gritty solid resistance of bone and cartilage.

A microscopic examination of the smaller growths shows the pedicle to be composed of numerous parallel blood vessels imbedded in a mass of small round-celled tissue, with a thin endothelial lining. Following this to the enlarged bulbous end, the periphery of the growth is found to have the same nature. The cortical portion is composed of an endothelial lining, consisting of a single layer of cells, and a connective tissue groundwork infiltrated with the small round cells characteristic of a chronic inflammatory process, often arranged in definite whorls, somewhat resembling a tubercle. But these whorls never contain the characteristic round epithelioid cells, the giant cells, or the necrotic areas, characteristic of tuberculosis. Minute blood-vessels are very numerous. A short distance from the outer border of the fringe, fibrous tissue begins to predominate over the small round cells, and this shortly gives way to adipose tissue of normal appearance, which constitutes the remainder of the growth. This is not pure adipose tissue, however, for at intervals appear striæ and irregular collections of more or less normal connective tissue, associated with blood-vessels. Although usually these bands are definite and stain deeply, yet often they stain but feebly, and show evidence of granular necrosis. The vessels, very numerous throughout, show, especially in the central portions, marked endarteritic changes, and, where the adipose tissue is most abundant, the vessels are very small, and their lumina are very frequently obliterated.

These same appearances hold true even in the largest fatty growths, save that in these cases the peripheral layer of small round cells is much thinner and at times almost entirely absent, while the areas of unbroken fatty tissue tend to increase in extent. Occasionally, and in apparently very chronic cases, the specimen shows a mass of unbroken fatty cells, with no patent blood-vessels, though occasionally traces of their walls which have undergone hyaline necrosis are to be distinguished. Here, too, are found irregular patches of former fibrous tissue which have become hyaline,—a condition which is universal throughout the fringe in rare cases of many years' standing.

Bone and cartilage cells were found in but one case, but here they formed definite areas of large size. In no case were any signs of tuberculosis apparent, nor is there any tendency to the formation of malignant new growths, though instances of the former are plentiful and of the latter not unknown in the literature.

Prognosis.—The question of the prognosis in these cases cannot, we think, be definitely spoken of as yet because of insufficient data on the subject. It must be borne in mind also that, in giving a prognosis, account must be taken of the cause of the villous hypertrophy. The operation cannot be justly condemned as a surgical procedure because a latent general disease has been overlooked by the operator. In the traumatic cases, and those due to faulty weight-bearing, there is every reason to look for a good result, provided, of course, that in the latter case the defective mechanics are corrected. Neither is it fair to expect or to lead the patient to expect a cure of rheumatoid arthritis to follow the simple removal of large masses of fringes from the knee-joints. In this and allied diseases causing villous arthritis the most that can be held out by way of encouragement to the patient is the hope that, by improving the function of a large joint whose integrity is vitally concerned in promoting the individual's general welfare, the individual may put himself in a position the better to overcome the diathesis. In many cases this can be accomplished, in others it cannot. So far as the cases here reported can afford any basis for a prognosis, bearing the before-mentioned circumstances in mind, and remembering the comparatively short time which has elapsed since the date of operation on the first of the series, it seems fair to claim that in the traumatic cases the prognosis is very good, whereas in the diathetic cases it is impossible to obtain very brilliant results. The long standing cases are apt to suffer from a condition of marked joint relaxation, which requires some after treatment tending to the strengthening of the muscles and shrinking up of the capsule; and this takes time. In one of our cases, where the fringes had developed directly beneath the patellar tendon, they had attained such size as to crowd the tendon forward and pre-

vent its coming perfectly straight in extension of the leg. This patient has had some difficulty in recovering complete voluntary extension, apparently because of this elongation of the patellar tendon. Abbott, in a recent article, speaks of a paralysis of the quadriceps extensor which has not been observed in our cases.

REVIEW OF LITERATURE.

The following represents the reports of cases reported by various authors.

Pathological text-books deal very lightly with the subject.

Ziegler presents an illustration of the museum specimen of lipoma arborescens described by Stieda.

Billroth mentions the fatty development in synovial fringes of joints, the so-called lipoma arborescens, as being a very rare condition.

Coplin believes the condition to be a step farther than cloudy swelling in the process of fatty degeneration. He considers it as developing in subserous or subsynovial tissue and pushing its way into neighboring cavities.

Delafield and Prudden refer to lipoma arborescens as a tuft of synovial membrane pushing into the joint, while by Hektoen-Riesmann the old theory is advanced that these growths are signs of some underlying cause, as tuberculosis, or osteo-arthritis.

Goetz, writing in 1798, was the first to describe the condition. He spoke of numerous thread-shaped and hydatidiform processes springing from the inner aspect of the synovial membrane of the knee-joint. They were rich in fat, suspended by slender threads, covered with a thin membrane. The larger ones had enlarged saccular ends filled with lymph. These fringes floated in the joint fluid suspended by their stalks.

Johann Müller, in 1838, first gave the name of lipoma arborescens to pendulous fatty processes hanging about the synovial fringes of chronically inflamed joints.

Solly, 1848, reported removal of several small bodies from elbow-joint of a man of fifty-nine years. First palpated nine months before, preceded and followed by distinct rheumatic attacks with inflammation and limitation of motion. On examination by Rainey these tabs were found to be enclosed in a membrane of fibrocellular tissue mixed with granular matter, while the central portion consisted of fibrocartilage and osseous tissue. They were attached to the synovia by pedicles and were very vascular, consisting of capillary sacculi and secondary sacculi without capillaries. He believed them to be products of disease of the synovial membrane, but of the exact nature of their formation he was in doubt.

Volkmann, in 1865, referring to lipoma arborescens, as being hypertrophied synovial fringes which had undergone fatty degeneration (sometimes cartilaginous), gave an illustration of the knee-joint specimen in the Anat. Museum of Halle, to which J. Müller first applied the term, and which was originally described by Goetz.

Simon, in 1865, reported a case of arthrotomy in an adult male for painful swelling and attacks of sharp pain on using knee. A large joint body could be palpated on inner aspect of joint. At operation this was found to be attached by a very vascular broad pedicle to the synovia of outer side of joint. The growth was removed and a normal functional knee was the result. The growth was 5 x 1.5 cm., smooth, bright red, and covered with prolongation of synovial epithelium, consisting of fibrous tissue with areas which had undergone fatty change, while the whole showed involvement by a sarcomatous process of the giant cell type. He considered it a hypertrophied synovial fringe which had become sarcomatous.

Volkmann, in 1873, reports the case of a sixty-three-year-old man with beginning arthritis deformans with symptoms of one and one-half years standing. Growth excised, found to be pedunculated, size of cherry, in outer side of joint, near upper part of patella. Growth fatty, perhaps developing from a fringe. General condition grew worse.

Boyer, in 1877, reported an autopsy in which there was considerable thickening of the synovial membrane of the right knee, its surface entirely covered by a large lipoma arborescens. In addition there were numerous pedunculated fringes, many of which contained cartilage and bone cells. A similar but less marked condition existed in the left knee. The joint surfaces of tibia and femur were eroded and osteophytes were present. In life knee had been stiff for some time.

Riedel, in 1878, reported two cases of solitary lipoma in knee-joint. Both occurred in young adult women, the first of nine months' duration following severe strain to knee, the second of thirteen weeks, no cause given. The results of excision were excellent. The specimen from the first knee consisted of a flat mass of fatty tissue lying lateral to the patellar tendon, attached to joint wall by stalk passing under and across front of joint. The second consisted of a walnut-sized body of firm consistency. The prolongation extended upward between fibers of the quadriceps. Both specimens consisted of pure fat tissue with a thick covering of cellular tissue.

Patterson, in 1879, reported a case of partial lameness and disability of eighteen months' duration following strain of knee in lifting. The body, which was palpable, was found at operation to be the size of a bean, lobulated and composed of cellular tissue, attached to the synovial membrane by a short pedicle, and associated with a small amount of synovial fluid. Healing uneventful; result not given.

Danzel, in 1879, reported a case of removal of a bean-sized hypertrophied fringe in the knee-joint of a healthy middle-aged woman. The symptoms were pain, locking, and weakness of joint. The body was palpable at intervals, was found at operation associated with clear, straw-colored fluid in joint and attached by a long pedicle to the synovial membrane, and was removed with an excellent functional result.

Godlee, in 1881, reported the case of a woman with a swollen, painful, and tender knee, of eight years' duration, in which a large movable body was palpable. At operation this was found to be a pedunculated mass, 1¼ x ¾ of an inch in extent, attached to the synovial membrane. Microscopically it was fibrocellular in structure, appeared to be covered with smooth synovial membrane, and the opinion was "hazarded" that it was an inflammatory thickening of a normal synovial villus.

In 1882, in a discussion following a report by See of a case of chronic arthritis treated successfully by iodoform injections, Lannelongue contended that tuberculosis was not the cause of all cases of fungous arthritis, but that some were undoubtedly rheumatic in their origin, and that there were probably other clinical varieties.

Barwell, in his article on the joints in the Internat. Cycl. of Surgery, 1884, referring to movable joint bodies, mentions one group, taking its origin in the hypertrophied fringes of the synovia. These growths are dendritic in appearance, often containing cartilage cells, and nodular formations, and sometimes become loose bodies, due to the breaking of their slender stalks. In this group he includes lipoma aborescens and single and multiple lipomata of similar origin.

Lauenstein, 1884, reported two cases of solitary lipoma in the knee joint. The first in a girl of seventeen, the onset occurring three years after an operation on the lower end of femur. For a year the knee had been swollen, painful, locking at intervals, with marked disability resulting. A mass was palpable above and to the outside of the patella. This was found attached to the anterior aspect of end of femur, and was removed. It was a fatty mass, 3.5x2x1 cm. in dimensions. Recovery uneventful, with perfect function of knee in about a year.

The second was in the case of an adult operated on for uniting the fragments of a patella fractured a second time. The joint capsule was found torn and joint was opened. Sanguineous fluid escaped, and in lower portion of joint behind the patellar tendon was found a fatty mass connected with the lig. cruciata and the intercondylar fossa through a synovial tear. It was very vascular. It was removed and patella fragments united. A functional knee with flexion to a right angle resulted.

He believed that the condition results from the tearing of the synovia by strain or blow and the entry of subserous fat into the joint.

Weir, in 1886, reported three cases of hypertrophied synovial fringes removed from knee-joints. All were without known cause in healthy young to middle-aged adults, and had persisted from one to three years. All were associated with swelling, tenderness, weakness, pain, or locking of joint. On removal they were found to be fatty, yellow-pink, irregular masses, very vascular, and from 1 to 3 cm. in diameter, attached to the synovial membrane by pedicles. Histologically the first showed chronic inflammatory condition with fatty and fibrous changes, while the other two had undergone sarcomatous transformation. In the first case sepsis intervened and amputation was resorted to with success, in the other two good functional result and absence of symptoms were obtained, without recurrence in the second case for at least two years.

König, writing in 1886, expressed the belief that lipoma arborescens was the result of a chronic inflammatory condition of which tuberculosis was the primary cause. This he did not consider a true lipoma, but he considered that a true papillary lipoma of the joint did exist which he saw in old cases of arthritis deformans.

Schmolck, in 1886, reported two cases of twelve and fifteen years' standing, with swelling and pain. On opening the first, numbers of dark to yellowish-red fringe-like bodies were exposed, of varying shapes and sizes, one large bundle being attached to the synovia by a broad base some 5 cm. in diameter. The second at operation showed the synovia thrown into deep dark red folds and covered with hundreds of hypertrophied fringes. Microscopic examination showed fresh miliary tuberculous process in both, evidently superimposed on the chronic condition. Schmolck contrasted these with several previously reported cases of isolated lipomata of joints, but was not positive as to the truth of the theory advanced by König and Riedel, that these solitary forms were subserous in origin, as contrasted with the lipoma arborescens of Müller, which was simply a condition of hypertrophied fringes.

Haumann, in 1887, reported a case in a man with a rheumatoid history of eighteen years' duration. On opening the joint large outgrowths, resembling bunches of grapes, were found attached to the synovia and composed of ordinary fatty tissue, which he considered to be hypertrophied joint fringes. No tuberculosis present. He believed the condition to be the result of a chronic inflammatory condition, as arthritis deformans, or joint syphilis. He considered that the condition favored the invasion of tuberculosis.

Sutton, in 1888, reported on two dissection specimens of joints, the first of a shoulder-joint in a case of chronic osteo-arthritis, which showed attached to the margins of the glenoid fossa numerous pedunculated processes, varying from simple villous fringes to pedunculated masses of fat. The second was from a femoral condyle of a specimen in the Royal College of Surgeons Museum, showing a similar condition. He believed the condition to be simply a fatty degeneration of the villous fringes so frequently seen in osteo-arthritis (rheumatoid arthritis).

Shattock, 1888, reported a case of pedunculated body removed from knee-joint. It was attached to synovial membrane, was white, blotched with red, 3.2 x 7 cm., in a thin connective tissue capsule. Histologically it consisted of a faintly staining meshwork of nebulous granular substance with patches of pigment, simulating true fibrous tissue. He considered it the product of an old hemorrhage into the alar ligament.

Bazy, in 1890, reported the case of an adult male with an enormously swollen knee, the arc of motion much restricted. At operation numerous fatty polypoid growths, purple to yellowish in color, associated with a few osteophytes on the femoral condyles, and considerable clear fluid and fibrin flakes. Healing uneventful and result not given. The specimen was a typical lipoma arborescens, the periphery composed of small round cells interspersed with many vessels, the central portion cellular adipose tissue with large vacuoles, and islands of granular material. No evidence of tuberculosis. He believed the condition to be of a chronic inflammatory nature.

Patterson, in 1890, referred to lipomata arborescentia of joints as the hyperplastic increase and subsequent fatty degeneration of normal villi of the synovial membrane, as distinguished from the pure lipomatous bodies in the joint which originate from the subsynovial fatty tissues. He considered that the loose fibrous bodies found in joints were originally hypertrophied villi which had become detached.

Israel, as quoted by Stieda, reported a case of swelling and pain in knee dating from a trauma six months previous. At operation he found the richly-vascular, fat-infiltrated, hypertrophied synovial fringes, the type of lipoma aborescens. No sign of tuberculosis. Excellent functional result.

Robson, in 1891, reported case of a sailor who had an intermittently painful knee, much swollen, following a trauma two years previously. No foreign body was palpable. Associated with much straw-colored fluid he found three pedunculated masses, the largest the size of a hen's egg, irregular, lobulated, fibrous in character, with a covering of synovial membrane. These were removed and a perfectly functioning painless knee resulted. He considered it a genuine fibrous polyp, originating in deeper synovial layers, and not an hypertrophied synovial fringe, which, though occasionally pedunculated, would seldom attain such a size.

Modunski, in 1891, reported a case of a tuberculous patient with swelling of knees of ten years' standing. In both knees were found typical lipomata arborescentia, infiltrated with caseous tubercles, while in one knee there was erosion of the cartilage. No microscopical examination.

Blachian, in 1893, reported a case of painful swelling of left knee, with limitation of motion, these attacks occurring at definite intervals of a few days with almost complete disappearance of symptoms between attacks. The condition was without known cause, but occurred five years previously in connection with an acute arthritic attack in shoulder, which disappeared under salicylates. It had become so severe as to seriously incapacitate patient. On opening the knee a small amount of clear fluid escaped, and a large number of fringes appeared, which took their origin from the synovial membrane. These were removed and a perfectly functioning painless knee resulted.

The outgrowths were typical synovial fringes, lymphoid and fibrous tissue predominating in the smaller, while the larger ones, consisting of fat cells, in a meshwork of fibrous tissue. They were all very vascular, and enclosed in an endothelial covering. He considered them typical examples of lipoma arborescens, taking their origin in the synovial membrane, not from deep tissue driven into joint; that in some cases tuberculosis might complicate the process without being its cause, and that the condition could result from trauma only if hemorrhage into joint occurred at the time. In this connection he cited a case reported by Brockelmann, in which a boy with a hemophilic tendency was operated on for acute hemarthrosis and died shortly after. At autopsy the synovial tabs of both knees showed marked hyperplasia, with brown patches of pigment, the starting point of a future chronic villous hypertrophy.

Dor, in 1893, cited a case of lipoma arborescens in the shoulder-joint of a man of forty-one years, suffering from arthritis deformans. From this he cultivated *Staphylococcus pyogenes albus* and a gelatine liquefying organism. From this he concludes that certain forms of arthritis deformans are of infectious origin, and that these organisms are the cause of the accompanying villous hypertrophy.

Le Bec, in 1893, reported a case in the knee of a girl of thirteen, following a fall with ensuing synovitis four years previously. Pain and swelling resisted conservative treatment, a palpable mass persisting. At operation he removed a mass of brown-red fringes two to six cm. in length, attached by pedicles to the synovial membrane, which were demonstrated microscopically to be of a purely fatty nature.

Schüller, writing in 1893, states that he found synovial fringes of varying size in normal joints, never, however, developed to such a degree as to be palpable externally, and not in great numbers. He carefully described the anatomy and histology of the enlarged fringes of chronic rheumatoid arthritis and believed that the term lipoma arborescens as applied to these cases should be abandoned as a misnomer, the condition being one of chronic inflammatory hypertrophy and not a new growth.

Riedel, in 1893, examining the knee of a patient in whom a healed periarticular tuberculous process was demonstrated microscopically, found great numbers of hypertrophied synovial fringes of the type of lipoma arborescens without trace of tuberculosis. He believed that there was originally a circumscribed intra-articular tuberculous process which first caused the fringe hypertrophy. He cited a case of removal of fringes from an otherwise normal shoulder-joint, where there was a tuberculous focus in the humeral head. One year later tuberculosis developed in the joint. These cases were first reported in 1891, together with a note on a third case, in which at operation a "fibroma arborescens" of the elbow-joint was found. No trace of tuberculosis was found in this case on microscopical examination. The patient was a girl of seventeen with marked tuber-

culous glands of the neck. He noted that the condition may develop in the wake of a tuberculosis, arthritis deformans, simple serous arthritis, or any chronic inflammatory condition of a joint.

Sokoloff, in 1893, reported two cases of chronic swollen painful joints in adults, the first of two and one-half years duration in the knee, the second of recent date in the elbow. In the first arthrectomy done with good results, in the second erosion with death from sepsis. In both were found typical hypertrophied fringes of small size in great numbers, with tuberculous infiltration of the tissue in the first. Sokoloff was of the opinion that tuberculosis was responsible for the condition in both cases, though found only in one. In a second article, published in 1893, he offered another etiological factor in fringe hypertrophy. He referred to the recent work of O. Hagenhorn and Schüller, who showed the presence of synovial fringes of small size in certain portions of all normal joints, and the developmental atrophy of these fringes in parts of the joints subject to pressure from the articular bony surfaces. Thus, when the intra-articular pressure was least, the fringe development was greatest. In this connection he reported two cases, one operative and one anatomical, of old non-reduced dislocations of femoral head. In both cases there was marked hypertrophic condition of the synovial fringes in the upper outer portion of the joint capsule, which was much dilated, and which was without function. These fringes were most abundant and had undergone extensive fatty degeneration.

Sokoloff believed that any pathological diminution of the normal pressure conditions was sufficient to cause this hypertrophy of normal elements, without any additional inflammatory process.

Vibrac and Faquet, in 1894, reported a case in which arthrotomy of knee was performed for relief of symptoms of foreign body in joint, following trauma two years previous. A typical lipoma arborescens and some free osteophytes were found, the former believed to be the result of the irritation of these foreign bodies. In the discussion M. Anchi referred to a case of coxafemoral arthropathy with numerous fatty synovial fringes. Some were terminated by fibrous nodosities, which were hard and infiltrated with cartilage cells, while others had become detached.

Stieda, in 1896, reported two cases, the first an operative case which dated from an injury to the knee several years previous. Resection of the joint was done with good results. The second was a museum specimen, a hip involved by arthritis deformans, which showed a marked lipoma arborescens. Microscopically, the periphery of the growths was composed of small round cells, and the central portion of adipose tissue interspersed with fibrous bands. Throughout were very numerous vessels, with thickened walls. He distinguished this condition from that of single or isolated lipomata of joints. These latter he stated to be composed of pure lipomatous tissue, presumably originating in the subsynovial tissue, which entered the joint cavity only through a laceration of the capsule. He believed the lipoma arborescens to be a hypertrophy with fatty degeneration of normal pre-existing tissue, caused by chronic inflammatory condition of whatever etiology, and not peculiar to any one disease. He considered operation, often of a radical nature, the only satisfactory treatment.

Halstead, in 1896, writing on floating bodies in the joints, referred to the pathological metamorphosis of normal joint villi and their subsequent detachment from the synovial membranes occurring in arthritis deformans and other forms of joint disease. This condition he distinguished from loose cartilage and true foreign bodies in the joint which have brought about a pathological condition in a previously normal joint. He gave as a clinical picture of these conditions sudden locking of joints, usually in extension, a recurring synovitis, at irregular intervals following an acute attack, and crepitation in joint.

Bolton, in 1896, on reviewing the literature, found 720 cases of arthrotomy for foreign body in the joint, and referred to the treatment of cases of the type of lipoma arborescens and hypertrophied fringes. Although he found unsatisfactory results in a large per cent. of these ceses, he nevertheless advised removal, tying of stumps if necessary, drainage only in extensive synovitis, or in severe hemorrhage from manipulation, and postoperative immobilization by splint or plaster.

Schüller, writing in 1900, in elaboration of his article in 1893, advanced the claim of a bacterial etiology of chronic villous arthritis, which he classified as a distinct disease. He took this stand from his observation that a chronic villous arthritis occurred often in the absence of any general disease, such as arthritis deformans. The condition he characterized as an hypertrophy of the fibrous and fatty elements of normal synovial villi, and their subsequent fatty degeneration following a chronic inflammation of the synovia. This inflammation he concluded to be caused by a certain bacillus, which, sometimes associated with a coccus, he found in villi thus affected. This he was able to grow in pure culture, and inoculate into the joints of animals with the subsequent appearance of similar synovial changes, associated with the presence of similar bacilli in the inflamed villi. The coccus he considered unimportant. No further work has been done to substantiate his claim, which appears scarcely conclusive in itself.

Goldthwait, in 1900, drawing conclusions from 38 arthrotomies of the knee-joint, mentioned the fact that in nineteen cases coagula or hypertrophied fringes or folds of synovia were found in the joint. He believed these fringes to be due to a chronic inflammatory condition of the synovia, with increase of blood supply and resultant hypertrophy of the membrane, which was able to expand in one direction only, due to the unyielding nature of the capsule, with the resulting formation of vertical folds. These folds slipped over each other, causing cracking and snapping,

or caught between the articulating bony surfaces, particularly below the patella, with locking of the joint. Trauma of this nature, frequently repeated, tended to perpetuate and increase this inflammatory condition. With prolonged irritation degenerative changes occurred, the fibrous tissue normally found giving way to bone and cartilage or to fatty tissue, especially the latter. Coagula, so frequently found in connection with this condition in the joint, he considered an end result of a former effusion, and believed that acting as a foreign body in the joint it was often the cause of the chronic inflammation. In cases where the condition was due to relaxed joint ligaments, he believed that strapping with resulting prevention of the intermittent trauma often caused the condition to disappear, but in most cases he recommended incision of the joint, excision of the fringes, irrigation with hot water, tight closure and immobilization. Immediately after removal of stitches, bathing, passive motion, and manipulation were to be practised. The prognosis was good in cases where the condition was due to local causes, but where due to an underlying general disease, it varied directly with that of the disease itself.

Abbot, in 1903, reporting 12 cases of hypertrophied fringes, 8 treated by operative measures, considered trauma to be but an occasional cause. He believed it to be the result of some fault in weight-bearing structures of lower extremity, especially a flattened arch, which he had found in all his cases. This led to straining of ligaments of joint, the meeting of articulating surfaces in abnormal positions, and the consequent pinching of normal synovial tabs, with a resulting chronic hypertrophic inflammatory condition. He found very vascular, dendritic, fibrous fringes, rich in cells, and associated with a varying amount of fluid, usually very slight. No micro-organisms, but a simple inflammatory condition. He noted the swelling, locking and pain in joint with frequent loss of function. On examination, no redness or heat. Swelling usually most marked on inside of joint. Movement possible beyond normal limits, lax ligaments, some lateral motion. For conservative treatment he advised hot air, strapping, correction of pronated feet, a brace to limit lateral motion. Immobilization of joint was condemned. The operative treatment consisted in excision of fringes, immobilization in plaster for two weeks, followed by manipulation. The after results are excellent. He found no foreign bodies or torn cartilages in any of his cases.

Conclusions.—1. Chronic villous arthritis is not a disease of itself, as has been claimed by some authors. It occurs associated with chronic diathetic disease which involves other tissues than the synovial membrane of the joints affected, but it is representative in such cases of the same pathological changes which subsequently obtain in the other structures of the joint. The two principal diatheses which cause this are rheumatoid arthritis and osteo-arthritis. The villous changes in these two chronic conditions are to be regarded as symptoms of a general condition, and not as an entity in themselves.

2. Traumatism, entirely apart from any diathesis, is capable of giving rise to an hypertrophy of villi, and this hypertrophy is usually a local one in the part of the membrane directly or indirectly injured. The type commonly goes on to a dense fibrous growth, which keeps the joint in a constant state of injury through its traumatic effects.

Traumatism, associated with an osteo-arthritic diathesis, is frequently the excitant of local synovial hypertrophy; but the synovial changes are apparently more the result of the trauma than of the stirring up of the diathesis.

3. Stout, flabby adults, with pronated or flat feet, are more liable to the type of fringe which undergoes fatty degeneration with a minimum amount of fibrous change. This condition is sometimes associated with pregnancy, the tissue relaxations of nervous prostration, and the "soft" condition of so many rapidly growing and sickly children at the period of puberty.

4. Alteration in the mechanics of weight-bearing is not, as has been recently stated, the prime cause of this condition in many of the knee cases. It is very frequently a contributing factor, and as such should be given its full weight when questions of treatment arise; but it is extremely doubtful if simple flat foot or pronated foot without some more fundamental tissue change can account for this condition.

5. The operative treatment in the properly selected cases gives eminently satisfactory results when undertaken with an understanding as to what the procedure contemplates. Conservative treatment, when carried out properly in suitable cases, which comprise, however, only a small class, gives equally good results. The main thing is to be able to discriminate between the classes.

6. Judging from the pathological findings, the condition is the result of a chronic inflammatory process of whatever cause, which, by acting upon the normal villi of the synovial membrane, causes their hypertrophy, together with a consequent great increase in the number of their blood-vessels. This condition becoming chronic, due to the continuance of the toxic cause or to intermittent and slight trauma, the vessels are unable to supply the needs of the new tissue, affected as they are themselves by the inflammatory process.

The result is their gradual endarteritic obliteration with the almost complete loss of blood supply and the disappearance of the normal fibrous tissue, which either undergoes necrosis and hyaline degeneration, or disappears, leaving in its place tissues which can be nourished by a very limited supply of blood, the adipose being the most common form. In this necrotic condition separation of the pedicle and the formation of a loose joint body can easily occur.

BIBLOGRAPHY.

1. Abbott, E. G., Jour. Amer. Medical Assoc., 1903. 40-1131.
2. Barwell, R., Internat. Cycl. of Surgery, Vol. 4.
3. Bazy, Bulletin de la Soc. Anatom. de Paris, 1890. Ser. 5, Vol. 4.

4. Billroth, Allg. Chirur. Pathol. und Therapie, 1883. 817.
5. Blachian, Deutsche Zeitschrift für Chir., 1893. 36-575.
6. Bolton, New York Medical Journal, 1896. 63-830.
7. Boyer, Bulletin de la Soc. Anatom. de Paris, 1877. Ser. 4, Vol. 2, 129.
8. Coplin, Manual of Pathology, 242 and 535.
9. Danzel, Deutsche Zeitschrift für Chir., 1879. 11-599.
10. Delafield and Prudden, Pathology, 317 and 779.
11. Dor, Gazette médical de Paris, 1893. Ser. 2, Vol. 8, 556.
12. Godlee, Transact. of Pathol. Society of London, 1881. 32-207.
13. Goldthwait, Boston Med. and Surg. Journal, 1900. 143-12.
14. Götz, Dissert. Inaug. zu Halle, 1798 (quoted).
15. Hagen-Torn, O., Archiv für Mikroskop-anat., 1882. 21-591.
16. Halstead, A. E., Transact. of Chicago Pathol. Society, 1896. 1-207.
17. Haumann, Inaug. Dissert., Bonn, 1887 (quoted).
18. Hektoen-Riesmann, American Text-book of Pathology.
19. König, Centralblatt für Chirurgie, 1886. 25.
20. Lauenstein, Centralblatt für Chirurgie, 1884. 11-836.
21. Le Bec, Le Franc. Méd., Paris, 1893. 40-4.
22. Modlinski, Medizinskoje Obosrenije, 1891. 20 (quoted).
23. Müller, Joh., Ueber den feineren Bau und die Formen der krankhaften Geschwülste, Berlin, 1838 (quoted).
24. Painter and Erving, Boston Med. and Surg. Jour., 1903. 148-305.
25. Patterson, Glasgow Med. and Surg. Jour., 1879. 11-66.
26. Patterson, Journal of Anat. and Physiol., 1890. 24.
27. Riedel, Deutsche Zeitschrift für Chirurgie, 1878. 10-37.
28. Riedel, Archiv für klinisch. Chirurgie, 1891. 41.
29. Riedel, Archiv für klinisch. Chirurgie, 1893. 45.
30. Robson, A. W. Mayo, Lancet, 1891. 1-934.
31. Shattock, S. G., Lancet, 1888. 1-775.
32. Schmolk, Deutsche Zeitschrift für Chirurgie, 1886. 23-283.
33. Schüller, Archiv für klinisch. Chirurgie, 1893. 45.
34. Schüller, Berlin. klinisch. Wochenschr., 1900. 37-93, etc.
35. Sée, Bull. et mémoires de la Soc. de Chir. de Paris, 1882. N. S. 8-457.
36. Simon, G., Langenbeck's Archiv, 1893. 6-573.
37. Sokoloff, Chirurgitscheski Westnik, 1893. 2 and 3 (quoted).
38. Sokoloff, Volkmann's klin. Vorträge, 1893. N. F. 81.
39. Solly, Trans. Path. Soc. of London, 1848. 2-111.
40. Stieda, Beitrag. für klin. Chirurgie, 1896. 16.
41. Sutton, J. Bland, Trans. of Path. Soc. of London, 1888. 39-290.
42. Vibrac, Jour. de Méd. de Bordeaux, 1894. 23-275.
43. Volkmann, Billroth and Pitha, Handbuch der Chirurgie, 1865. 2-576.
44. Volkmann, Beiträge für Chirurgie, Jahresbericht der Univers. Klinik zu Halle, 1873. 183 (quoted).
45. Weir, R. F., New York Medical Journal, 1886. 29-725.
46. Ziegler, Lehrbuch der allg. Pathol. 2-220.

PRIMARY OSTEOPLASTY IN OPEN FRACTURES OR FRACTURE DISLOCATIONS.

BY THOMAS H. MANLEY, M.D., PH.D.,
OF NEW YORK.

A WIDE field for osteoplastic procedure is offered in various types of open fractures. To this species of salutary, conservative surgery, we must turn now, as a substitute for primary amputation in a large number of severe traumatisms of the limbs or their appendages.

With the utilization of anesthesia, we may now proceed with deliberation and thoroughness in our examination. With effective hemostasis and surgical cleanliness we may take chances in saving a shattered limb without any disadvantage to our patient; but, moreover, we can preserve and restore many an appendage or limb which before the Lister period had to be sacrificed or retained in a distorted, useless shape.

Immediate Osteoplasty After an Open Fracture.—There are comparatively few extensive mutilations of osseous parts which permit of extensive or precise manipulation of them immediately after injury.

The patient is usually in shock, has lost freely of blood and is in a bad way to endure any tedious procedure under an anesthetic. Moreover, we are not always able at this stage to determine the degree of vitality in the parts mutilated.

There is a small number, nevertheless, which is in such a physical state as to warrant precise treatment at first examination.

After effective hemostasis and cleansing we may quite painlessly effect replacement of the fragments, and so close in the muscular or fibrous structures about them as to aid in their retention. We may remove detached fragments driven into the soft parts or forcibly pressing on the nerve or blood-trunks. If necessary, we may also drill the fragments, rivet or wire or peg them.

Fragments retaining periosteal, muscular or connective-tissue attachments, should be carefully replaced; the torn muscle, tendon or ligament may be sutured with fine gut. An effort should always be made to secure a *dry* and clean wound.

Drainage, by the use of sterile gauze-wick, may be employed when the wound is deep, and there has been extensive laceration; though in some it will be quite enough to leave the integuments freely open, or close them in by a few sutures only, in order to permit of a free escape of the secretions. The limb should then be embalmed in antiseptic dressings, placed in a flexed position and be comfortably supported.

When these cases escape infection, and there is no suppuration, in a sound subject, the primary dressing should not be disturbed for a week or ten days. In vigorous subjects, we may often look for surprising results.

Consecutive Osteoplasty After Open or Complicated Fracture.—The aim and purpose of consecutive osteoplasty are to overcome deformity and restore function. Immediately after many serious fractures, we are unable to estimate what the degree of resulting defect in outline or action of the limb will be.

There has been more or less local devitalization of the parts, hard and soft, and though widespread infection is under control, the dead tissues must be thrown off by sloughing or mortification.

In many open fractures time alone will determine how extensive the loss of tissue will be. Again, the limb may have been so badly crushed, that our energies must be concentrated on an attempt to save the limb in *any form*, the matter of shaping it, being an affair for further consideration.

We have another class of fractures in which consecutive surgery is capable of sometimes effecting superb results. These are cases of closed so-called "simple" fracture, followed by hyperostosis or deflexion of the fragments, with resulting damaging pressure on the nerve trunks, neuralgia, paralysis or hyperesthesia of the limb.

Several illustrative cases of this class have come under my notice; one a fracture of the clavicle with downward pressure of the callus on the brachial plexus; one of callus inclusion of the muscular spiral nerve in humeral fracture; one case of complicated fracture of the elbow and forearm with fusion of both shafts and a dislocated head of the radius; several in fractures of the leg and thigh.

Osteoplasty in Fractures of the Extremities in Close Proximity, or Involving the Articulations.—Osteoplastic resources are frequently useful in

effecting reposition, correcting deformities, relieving nerve pressure or overcoming deformity in various closed fractures, or in dealing with cranial or clavicular fracture, but their great forte is with the open or complicated, of the levers of the extremities.

We should invite no fresh complications by division of the tissues, unless they are already open, as it is with these latter, as a rule, there is the greatest degree of osseous disorganization, displacement and destruction. We may enlarge the wound, possibly effect a reduction, remove all foreign material, embalm the parts and apply supports.

In very serious cases, involving complete destruction at and beyond the site of injury, our aim will be to institute rigorous asepsis and place the mutilated member in such a position as will prevent the needless sacrifice of tissue after the line of demarkation is formed.

In many open fractures, replacement may be easily effected, there may be but little shattering; with these, the less the fragments are manipulated, the better. Bone substance though dense and hard is exquisitely sensitive to the irritation of the atmosphere, to strong chemical solutions or rough handling. Were the bone substance as immune to irritation as the peritoneum, surgery might readily remedy nearly every description of deformity.

The tolerance of bone substance has a definite limit, which when imposed on, resents it by arrest of repair or by necrosis. For this reason, it is obvious that at the time of primary examination, if constitutional and local conditions warrant it, we should institute and complete such simple osteoplastic measures as will favor the transformation of an open into a closed, or simple fracture, with early solid union. Facilities within our reach render this possible at present in the greater number of cases.

Osteoplasty in Infancy and Childhood.—It was my privilege, at a meeting of the American Medical Association, in Atlanta, Ga., in 1896, to submit an essay on the "Special Characters of Fracture in Children and in Early Life."

Every one knows that not only are the anatomical structures of the child widely unlike those of the adult, but that the finer histological elements of the osseous structures are characteristic. The skeleton in childhood is immature, elastic and highly vascular; its evolution is incomplete and hence, when damaged in varying degrees, is capable of the dual property of repair and continued growth at the same time. Nay more, sections of the skeleton in the child are capable of quite complete reproduction, after loss by injury or disease. Moreover, through compensatory agencies, many osseous blemishes and deformities are capable of obliteration during the growth of the body.

When, therefore, in serious fracture, the brunt of violence has fallen on the bone elements and the vital structures of the soft parts have escaped, conservative surgery may accomplish remarkable results. But, the limbs or the appendages of the child are tender, softer and much less resistant to compressed force than the adult's. This we will sometimes unhappily see demonstrated in those disastrous results, from the too firm splinting or tight bandaging after fracture. We will observe it also after such violence as might be safely sustained by the adult limb. The parts after the crush in open fracture of early childhood may readily perish, fail to react, and gangrene may set in early. This applies, it is true, only to extreme cases, but it is more frequent than in the adult from the same degree of force. Besides, the child bears deep shock badly, and mortal symptoms may set in early after the free loss of blood.

In the child, primary osteoplasty may be quite out of the question; but we should not despair or give up hope, unless the limb has been quite entirely destroyed at the time of injury. Hemorrhage must be immediately subdued, the parts swathed, and the little patient resuscitated; then, provided only the circulatory currents become reestablished, we may look for quite complete osseous regeneration.

In the technic of osteoplastic operations on the child, the greatest caution must be observed to preserve every particle of the periosteum possible, for however complex, the process of osteogenic repair may be with the adult, there is abundant evidence that the presence of this membrane is indispensable to osseous regeneration in early life.

Osteosection in childhood, using the heads as an osteoclast, very frequently serves a useful purpose, in strumous or rickety patients in whom union of the fragments is slow or imperfect. In these cases, when the lower limb is involved, the defective callus yields under the weight of the body after locomotion has begun, with a resulting deflection, bowing and shortening of the limb.

MEDICAL PROGRESS.

SURGERY.

Müller's Operation for Spina Ventosa.—Spina ventosa was formerly considered one of the most intractable of the minor surgical complaints and failures were numerous before Müller published his new operation. Briefly this consists in removing the diseased diaphysis with or without periosteum, sponging out the cavity with iodoform solution and then implanting a piece of the ulna with its periosteum, ½ cm. (⅕ inch) broad and 2 to 3 mm. (1/12 inch) thick. It should be long enough to fit accurately into the space between the intact epiphyses. O. EHRHARDT (Münch. med. Woch., Sept. 29, 1903) has tried this method in six cases and finds it extremely simple and efficient. If there is danger of weakening the ulna, the tibia may be employed instead. The after-treatment generally lasts three weeks, though splints must be worn somewhat longer. The presence of fistulæ is no contra-indication but cases of cicatricial shortening are generally unsuitable. The same applies to cases where the epiphyses and joint are already involved.

Aneurism Treated by Matas' Method.—In view of the fact that the German and other European writers

have to date practically neglected to recognize the existence of this admirable American technic, it is of import to note that the method is gradually gaining a foothold. The method is based upon the fact that the endothelial surface of the artery is capable of exhibiting all of the reparative and regenerative reactions which characterize endothelial surfaces in general when subjected to irritation. ROBERT T. MORRIS (Ann. of Surg., Oct., 1903) records a case of fusiform aneurism in the popliteal region, which he successfully treated by this technic. The patient was a strong, robust man, fifty-eight years of age, who had been in the habit of sitting with the right leg over the arm of his chair. No other part of his history had any bearing on the case. Swelling had appeared in the last three or four years in the popliteal region, which had been increased until at the time of the operation the aneurism was so large that its pulsations were visible on both sides of the knee when viewed from the patellar side. The edema had been so severe that the leg had to be tapped in order to allow it to subside; but despite this, the lymphatic tension was very high. This made ligation of the femoral peculiarly dangerous, and was the chief factor in causing the use of the Matas method. The part was prepared with a germicidal depilatory a few minutes before the operation. This method avoids the need of shaving and simplifies the process of establishing asepsis. The incision was 10 inches long and was carried longitudinally through the wall of the sac of the aneurism. A double handful of clots was removed from the sac, and the aneurism shown to be fusiform with a large, thin-walled diverticulum, which constituted the chief part of the mass. A running suture was passed through the deepest part of the sac so as to construct something more than three inches of a new artery of a caliber estimated to be similar to that of the popliteal, and a second row was introduced for purposes of strength. The elastic bandage was next removed and immediately the new artery began to beat. There was no leakage. The patient's foot was warm, but there was no pulsation in the arteries to be felt on account of the edema. The wound was closed without drainage and it healed completely by primary union. The anesthesia and loss of power which had been present, shortly disappeared, sensation being well defined by the seventh day. On the twenty-second day at the site of the aneurism the newly constructed artery could be felt. The restoration of function was satisfactory.

Irrigation of Biliary Passages.—F. KUHN (Münch. med. Woch., Sept. 29, 1903) warmly recommends injecting water under moderate pressure through the biliary passages at every operation for cholelithiasis. Besides ascertaining that the passages are free, one can by the addition of suitable drugs, directly medicate the diseased mucous membrane, force out mucus and small stones and exert a beneficial massage upon the tissues. The method is not risky, yet sometimes moderate attacks of colic will follow. If a pressure corresponding to 500 mm. of water is used, 25 c.c. per half minute, indicates an obstruction; 25 to 50 c.c. is normal and 50 to 100 c.c. signifies dilatation. Large stones wedged in the common duct will not be influenced but smaller calculi and sand will be expelled as effectually as after an attack of colic. All cases should be irrigated systematically after operation, to avoid recurrence.

Acute Inflammation of the Cecum.—Among 350 cases operated for appendicitis, D. REISINGER (Münch. med. Woch., Oct. 6, 1903) found the appendix normal in two though all typical symptoms had been present. They must be looked upon as instances of primary, gangrenous typhlitis, the existence of which some authors are inclined to doubt. Constipation played a prominent part in only one but it is probably the most important factor in setting up ulceration and gangrene in the cecum. The relatively little movable ascending colon will push up and compress the transverse portion so that overdistention and anemia will follow. This will naturally be most marked in the cecum where the walls are thinner and less resistant. As the feces are converted into scybalous masses, direct irritation and injury of the mucosa results. The posterior wall is especially endangered since free from peritoneum. The correct diagnosis can only be made at operation since typhlitis and epityphlitis are clinically alike.

Surgical Treatment of Lung Abscess.—Pulmonary surgery has advanced very rapidly owing to the fact that so many lung affections are not improved by internal treatment and since the tolerance of the lung toward knife and cautery is really very great. The number of successful operations in apparently hopeless cases has been large, but the celebrated specialist in lung-surgery, KAREWSKI (Münch. med. Woch., Sept. 29, and Oct. 6, 1903) warns against taking too enthusiastic a view. In the case of abscess especially, it is absolutely necessary to localize accurately the lesion and also to take its etiology into consideration for a number of forms are not suited for operative procedure. Then also, a large number of abscesses heal spontaneously and this applies especially to the metapneumonic form. Though but few lobar pneumonias are followed by abscess, the author found that 5 out of 14 were preceded by a true pneumonia. Abscesses secondary to influenza pneumonia are unsatisfactory both from a medical and surgical point of view and rarely heal spontaneously, since there are generally multiple foci which do not communicate with a bronchus, so that the pus cannot be coughed up. Should it be possible to convert all the small cavities into a large one during operation, the outlook is more favorable, though it may take a year before suppuration ceases. The chronic lung abscess of advanced age will hardly ever call for operation. Foreign body abscesses generally have thickened walls and lead to bronchiectasiæ. Every attempt should be made to remove the foreign body through the bronchi since it can rarely be found at operation and the prognosis in general is not good. Abscesses of this kind have been known to heal spontaneously where the foreign body was expectorated after ten years. The prognosis is also very unfavorable where septic emboli are the cause. A much more favorable outcome can be expected where there is an arrosion of the lung from suppuration in the neighborhood. Perforating hepatic and subphrenic abscesses and cold abscesses secondary to Pott's disease are the most frequent source of this class, while in a few cases softened bronchial glands, gastric ulcer, strumitis with mediastinitis and perinephritis were found. These conditions often run as obscure, chronic sepses until the pus breaks into the lungs, when the patient's condition will suddenly improve. A single, well-circumscribed focus is generally found in the lungs at operation. In all cases in which the pus is not freely evacuated through the bronchi, it is wrong to wait for a spontaneous perforation, since chronic sepsis, brain abscess or recurrent joint inflammation may follow. Before deciding upon an operation, it is important to ascertain if acute or chronic. In the latter, there are often multiple foci with dense, unyielding walls which greatly prolong the process of granulation. The condition of the ribs is of great importance; the ribs of young individuals are more elastic and flexible and readily adapt themselves to changed conditions within the lungs. An apical abscess heals more readily than a basal one since drainage is more perfect both by way of the bronchi and the drainage tube. Since,

however, the lower lobes are more movable, the contents will be more readily expelled and the surrounding organs will tend to fill in the defect and thus hasten cicatrization more readily in this locality. In general, an expectant treatment is admissible in young individuals, with small apical foci or with larger, recent, basal foci. In many cases the abscess tends to progress toward the surface of the lung and many an empyema has been operated and its cause, a lung abscess, detected only later during the after-treatment. Operation should not be deferred until an empyema sets in, since this renders the prognosis much worse. It is not necessary to wait until pleural adhesions have formed; if the operation is conducted in two stages and the lung sutured to the costal pleura with silk saturated in turpentine, during the first act, the surgeon need not fear that he will be the cause of an empyema. A great advantage of early operation lies in the fact that the patients are improved permanently, whereas with internal treatment a recurrence may follow, even after years of latency.

PHYSIOLOGY.

New Researches on Indicanuria.—It has been observed that during the oxidation of indoxyl, there are produced not only indigo-blue, but also red and brown substances. The reseaches of C. PORCHER and C. HERVIEUX (Hoppe-Seyler's Zeitsch., July 31, 1903) show that the rapid oxidation results in indigo-blue, while the slow oxidation results in indigo-red. The authors obtained a positive indigo-reaction in the cases of the urines of horses, dogs, rabbits, guinea-pigs, and also human beings. In their opinion indican is a normal constituent of urine and consequently indicanuria loses in significance as a diagnostic sign.

The Relative Toxicity of Distilled Water, Sugar Solutions, etc., for Marine Organisms.—One need not discuss the possible practical interest or profit which medical science may have in the investigations on the above theme by JACQUES LOEB (Pflüger's Archiv, July 8, 1903). He found that for a certain species of *Gammarus*, distilled water and a solution of sugar is osmotic with sea water are about equally toxic. In both solutions at the warm temperature the organisms die in half an hour. Hypotonic sugar solutions are not as poisonous as the above. Pure solutions of table-salt that are isosmotic with or less concentrated than sea-water, have the same effect as distilled water. The organisms die sooner in a solution containing all the constituents of sea-water except sodium chloride, than if kept in distilled water. If a solution be used in which NaCl, KCl and $CaCl_2$ are present in the same concentration in which Na, Ca and K are contained in sea-water, *Gammarus* will live for several days. The addition or $MgCl_2$ will prolong the life of the organism, but the addition of the other constituents of the sea-water will have no effect in this respect. From these facts it follows that the sodium chloride contained in sea-water is by itself poisonous and that this toxicity is neutralized by the Ca—and K—salts, and that the K— and Ca—ions contained in sea-water are by themselves more poisonous than the NaCl, but their toxicity is abolished by the presence of the NaCl. The reciprocal neutralization of these toxic actions requires that the concentration of the antagonistically acting salts or their ions should bear a definite relation to one another, corresponding to the normal relationship in sea-water. These facts corroborate the results already obtained by Loeb, in showing that sea-water with respect to its contained organisms (and the serum of an animal with respect to the tissues which it bathes) furnish a solution of salts which is in physiological equilibrium, in which the toxic actions mutually antagonize one another. If the concentration of certain constituents be altered within certain narrow limits, it is possible to impart to the tissues properties which they do not possess normally, as the author has shown in his experiments on artificial parthenogenesis, the rhythmical contractions of muscle and the increase in the excitability of muscle and nerve. The author is convinced that this theme is pregnant with suggestions for the science of pathology in general, and for that of nervous diseases in particular. The researches furthermore strengthen the hypothesis that the toxicity of distilled water and other substances depends upon the fact that electrolytes leave the organism. It is probable that antagonistic salts or ions do not leave with equal rapidity or in the same relationship. Such a disturbance of the relation of the concentrations of antagonistic salts or ions in the tissues, would hasten the onset of death.

Resuscitation of the Heart.—A number of interesting experiments of A. VELICH (Münch. med. Woch., Aug. 18, 1903) prove that the heart can be made to contract many hours after the death of the animal, provided an artificial circulation of some nutritive solution be kept up in the cardiac muscle itself. Thus, a young dog was killed, the heart removed immediately, placed in physiological salt solution, and exposed to a low degree of temperature. Twenty-four hours later, a fluid containing sodium, calcium and potassium chloride, bicarbonate of soda and 0.1 per cent. glucose, was allowed to circulate in the coronary vessels. After several minutes, both auricles began to pulsate distinctly and soon the ventricles also showed feeble contractions. In another experiment a dog was killed by means of nicotine. Ten minutes after the heart had stopped beating, 200 c.cm. of the above-mentioned fluid were injected into the heart in a centripetal direction. A closure of the aortic semilunar valves was affected and the fluid was forced into the coronary arteries and left the heart muscle again by way of the coronary veins. Contractions soon appeared and in a few minutes the entire circulation was restored and the animal revived. The writer believes that this method can be applied with success in medicine, in cases of sudden cardiac collapse.

Action of Bile on the Heart.—The clinical observation has been made that during the course of an acute icterus, the heart action shows marked disturbances, among which the slowing of the pulse is the most noteworthy. In order to explain this phenomenon K. BRANDENBURG (Berl. klin. Woch., 1903, No. 38) has lately made some animal experiments which go to show that if bile is introduced in small quantities into the circulation, reflex excitation of the vagus is produced by the irritation of the sensory nerves of the heart. This leads to a transitory weakening of the auricular contractions and a slowing of the heart beats. It is only after the introduction of larger quantities of bile that the heart muscle itself is damaged. The long continued action of blood containing bile affects the muscle cells very slowly and first involves those which lie near the openings of the large veins of the heart. The action of the bile on the heart depends on the presence of biliary acid salts, but as these are sparingly produced in chronic icterus, the absence of a slower pulse rate may be thus explained in the latter class of cases. The slowing of the pulse rate in many acute cases of icterus is therefore to be considered a very complex phenomenon, brought about by the combined action of the biliary salts producing in the first place a reflex stimulation of the vagus and in the second a destructive change in the heart muscle cells near the openings of the large cardiac veins.

The Alexins in Recurrent Fever.—It is only recently that the part played by alexins in convalescence

from infectious disease became well understood, and the estimation of the amount of this so-called protective proteid in the various conditions where it is encountered has been engaging the attention of several investigators of late. A. A. MELKICH and J. V. KALYAPIN (Roussky Vrach, No. 35, 1903), present a résumé of conclusions touching this subject, as drawn by Housseff, at the bacteriological institute at the Kasan University, according to which the quantity of alexins in the serum of healthy individuals is more or less constant, while their variation in diseased states depends entirely on the pathogenic principle of the given disease. At the height of infection that terminates favorably the amount of alexins is above normal, while this amount falls considerably at the moment of intense struggle between the force of the organism and the infectious principle; there seems to be no relation between the amount of alexins and that of the white blood corpuscles, or their several varieties. The authors base their results on investigations of 14 cases of recurrent fever, in whom there were made daily examinations of the amount of alexins, and the hemolytic power of the serum. They find that the alexin indicator is very high (5.62; 4.82; 5.83;) during the first attack, and diminishes gradually up to the last day (2.84), while during apyrexia the fall comes down to 0.27, but rises rapidly again in two or three days; a considerable fall is also observed on the eve of the crisis. Then the indicator rises at the period of convalescence to 5.06 and keeps at that height up to the time the patient is discharged. As regards the natural hemolysis it seems in a general way to run parallel to the alexin curve, with slight deviation at times. The variations in the alexin curves show decidedly a rise during the beginning of the attacks and a fall at the time of the crisis. During the first apyrexia the curve rises again up to the normal or even above it, and this rise continues for several days. Just before the second attack the curve again approaches the normal, falls after the second crisis, rises rapidly at the period of convalescence and stays so until complete recovery. These results, based as mentioned above on the investigations of recurrent fever, coincide completely with the investigations made by the former investigator on malaria and catarrhal pneumonia. It is unfortunate that the complexity of the investigations, as well as of the calculations, prevented the authors from establishing the number of white corpuscles and similar bodies in the blood, as this would greatly assist us in solving the problem of the origin of the alexins; it would, however, interfere with the investigations concerning the hemolytic and bactericidal properties of serum. Dr. Melkich has, however, in one of his former works, elaborated some conclusions on this subject, and he finds (1) that during the attack the number of white blood corpuscles increases quite rapidly, and this increase reaches its highest a day before the crisis; (2) this increase may last for one or two days, then it gives way to a rapid diminution in the general number of the white blood corpuscles, and every following crisis is accompanied by a more pronounced and rapid hypoleucocytosis. The lymph corpuscles participate but very little in the general increase of the white blood corpuscles, and their curve does not correspond to the curve of the multinuclear cells, nor is it in any way related to the variations in leucocytosis.

Increased Heat Production as a Cause of Fever.—In cases of cerebral hemorrhage in the neighborhood of the corpus striatum there is frequently a rise of temperature and if the temperature of both axillæ is measured a higher record is often obtained on the paralyzed side. In two cases of ordinary hemiplegia, W. HALE WHITE (Zeitsch. f. klin. Med., Vol 50, Nos. 3 and 4) also found the temperature higher in the axilla of the diseased side. In one, the surface temperature was alike on both sides, but the perspiration secreted on the paralyzed side was much higher, so that heat dissipation must have been much more rapid here. Since, however, the internal temperature was increased, it follows that more heat was actually liberated. In typhoid and suppuration the fever is chiefly due to a diminished dissipation of heat, in pneumonia and erysipelas more to an increased production like in hemiplegia.

HISTOLOGY, PATHOLOGY AND BACTERIOLOGY.

Bilharzia Disease.—Tropical medicine has come to be of ultra importance to us in the last few years because of territorial expansion. S. R. DOUGLAS and F. W. HARDY (Lancet, Oct. 10, 1903) reached the following conclusions from a study of 50 cases of this disease: The histological characters of the blood exhibit the following changes: (*a*) The percentage of the coarse-grained eosinophile leucocytes is, with very few exceptions, much above the average found in normal blood. This increase is proportionate in the diminution of the polymorphonuclear leucocytes. (*b*) Less frequent is an increase of the large mononuclear leucocytes, and where this is present, it is associated with a diminution of the lymphocytes. The histological characters of the leucocytes in the urinary sediment are as follows: They are almost exclusively coarse-grained eosinophiles, the large mononuclear form being very uncommon. The ova in the urine vary in number from day to day. Large quantities of blood and other cells are often present when but few ova can be found.

Healing Tendency in Nephritis.—After examining the kidneys of rabbits a varying length of time after they had received sufficient bichromate of potassium, to set up an acute nephritis, Ch. THOREL (Deutsch. Arch. f. klin. Med., Vol. 77, Nos. 1 to 6) concludes that a healing tendency manifesting itself in cell-division and regeneration of lost epithelial cells shows itself very early at a time when parenchymatous degeneration is still progressive. The kidney possesses the property to replace lost tissue with functionating glandular structures, to a very high degree and the frequency with which acute and subacute nephritis is cured, must be ascribed to this. Where, however, the intoxication continues, all regeneration will be useless since the new-formed cells will rapidly undergo necrosis.

A New Culture Medium for Tubercle Bacilli.—W. HESSE (Deutsch. Arch. f. klin. Med., Vol. 77, Nos. 5 and 6) prepares a nutrient agar by boiling 10 gms. of agar, 20 to 25 c.c. of glycerin and 1,000 c.c. of distilled water for one-half to one hour and then filtering. 25 c.c. are then filled into each test-tube and sterilized one hour in live steam on three succeeding days. For each sputum to be examined, six tubes are used and these are rendered alkaline with 0 0, 2 0, 5 1, 2 and 5 c.c. of decinormal potash solution respectively before being poured into Petri dishes. The object of this is to obtain a medium of the same alkalinity as the sputum to be examined. The patient is directed to remove all saliva from the mouth and then to cough the sputum from the deeper parts into a sterile dish. Several small particles are deposited upon the inverted surface of an agar plate and carefully distributed. The sputum is thus isolated into a number of small flakes and a sterile cover-slip is loosely placed over one of these. The dish is then encircled by means of a rubber band and placed in the incubator. The material necessary for the growth of the bacilli is contained both in the sputum and in the culture medium. After 1 to 3 days the germs will have multiplied upon that medium whose alkalescence

corresponds with that of the sputum, and it is only necessary to remove the cover-slip and stain with carbol-fuchsine. After one to two weeks the colonies will be visible with low magnification. Hesse believes that the alkalinity of the mucus in the bronchi plays an important part in infection. If a catarrhal condition of the air-passages exists and tubercle bacilli are inhaled a general infection is less liable to occur, if the reaction of the mucus differs materially from that of the former culture medium of the germs, since their propagation will here be slow and the organism will have time to protect itself against their invasion. Where, however, the reaction is the same, a generalization of the infection is more apt to occur. Bovine mucus is much more alkaline than human, hence the bacilli from cattle can only cause local lesions in man and conversely.

Differential Leucocyte Count in Early Days of Typhoid.—The value of a differential count of the leucocytes during the first week of the disease has generally been thought to be of doubtful importance for the relative changes peculiar to typhoid were believed to begin during the second week and gradually progress during the third and fourth. H. A. HIGLEY (Med. Rec., Sept. 19, 1903) has carefully counted the leucocytes in a number of cases within the first week of what was subsequently proven by various clinical and bacteriological tests to be typhoid fever. In order to determine the day of the disease, considerable reliance was placed upon the time of the appearance of the eruption, which was frequently and faithfully examined for. The time when it first appears is given differently by various authorities, but it is pretty generally agreed that it should appear from the seventh to the tenth day of the disease. In each of his cases the leucocyte count was taken at least three days before the appearance of this rash and, therefore, the case could safely be said to be within the first week. The average percentages for the various leucocytes were: small mononuclears, 17.8 per cent.; large mononuclears, 21.1 per cent.; polymorphonuclear neutrophiles, 59.4 per cent.; eosinophiles, 1.7 per cent. Such an increase of large mononuclears in the early stages of the disease would naturally be of considerable assistance in making a differential diagnosis. There is, however, always an important personal element in distinguishing the small from the large mononuclears, and it should be said that in these results reported above all those mononuclear non-granular leucocytes which were larger than a red blood cell (Jenner stain) were counted as large mononuclears.

Behavior of Typhoid Bacilli in Milk.—From the results of a large number of practical experiments and culture tests, R. BASSENGE (Deut. med. Woch., Sept. 24, 1903) finds that heating milk to 60° C. for five minutes is sufficient to destroy whatever typhoid bacilli may be present. For this purpose earthenware vessels are preferable to those made of iron or enamel ware. The destruction of bacilli in raw milk is favored by the formation of acids, such as lactic, butyric, etc., when the acidity becomes greater than 0.3 to 0.4 per cent. and has been present for over twenty-four hours. In buttermilk, whey and butter, the bacilli perish under the same conditions. During the process of centrifuging milk for making butter, the bacilli largely find their way into the cream and may remain there in an active state until the condition of acidity already mentioned arises. This corresponds, however, to the period when the taste of the butter becomes affected, and before this time, that is, when the butter is more apt to be eaten, the bacilli are still present in their original virulence.

Morphological Biology of the Tubercle Bacillus in Unfavorable Media.—The changes which the bacillus tuberculosis undergoes in media unfavorable to its development have been carefully studied by G. GUYOT (Gazz. Osped., Sept. 20, 1903). Naturally, the greatest interest centers in the variations seen in the organism under the influence of antituberculous serum. These the author describes as follows: The bacillus first swells, stains feebly, and as it increases in length and breadth the coloration becomes paler and irregular. Then follows fragmentation of the body, so that it seems to be divided into two or three parts of normal color united by almost colorless segments. From the junction of two or three of such bacilli a chain is formed which is not unlike the streptococcic chain in appearance. Ultimately the fragments of the bacilli become isolated and assume a great variety of shapes. In addition to the chain-like formation of the bacilli, agglutinated amorphous masses of the organism are seen. The author calls especial attention to the small round or oval bodies seen by him when the bacilli were in advanced stages of degeneration. These are generally seen at the extremity of a bacillus; but one being associated with a single organism, as a rule. They stain very intensely and are most abundant in specimens subjected to the influence of antituberculous serum for two weeks or more. The writer thinks it not improbable that these bodies may be spores.

Diminishing the Virulency of Tubercle Bacilli.—The results of extensive experiments by H. HERZOG (Centralbl. f. Bakt., Oct. 9, 1903) demonstrate without a doubt that tubercle bacilli, inoculated into cold-blooded animals, will remain virulent for over 190 days. If, however, the germs are again used for inoculating guinea-pigs these animals will remain alive a much longer time, which is not due to a diminution of the number of germs in the cold-blooded organism, since they readily multiply here, but to a direct reduction of virulency. By inoculating a second and a third series of frogs with germs which had already passed through a frog, an increased susceptibility of these animals is noted, showing a marked power of adaptability on part of the bacillus. Morphologically it will more closely resemble the germ of fish tuberculosis and guinea-pigs do not so readily succumb to inoculation. The maximum temperature of growth is also considerably lower. The same observations were observed when the germ of bovine tuberculosis was substituted for that of human tuberculosis in all the experiments, which seems to show that they are at least closely allied.

Behavior of Blood at Different Ages.—Certain animal poisons, as spider toxin, behave differently with the blood of different species: with some animals hemolysis is rapid and complete while with others, no effect is produced, since a sufficiently large number of receptors are circulating in the blood. That these receptors may only be lost, as the animal gets older, is shown by H. SACHS (Centralbl. f. Bakt., Oct. 9, 1903). Newly born chicks possess a complete immunity toward spider-toxin, while in the full-developed animal the poison rapidly proves fatal. An increased resistance in general is not, however, present, for other poisons, such as staphylolysin is more toxic for young animals than for old. Fetal bovine blood is very susceptible toward cobra-poison, but becomes more resistant as the animal grows and the phenomenon here stands in close relation to the degree with which the lecithin is combined with the red cells.

Agglutination of Streptococci.—Streptococci obtained from the blood of scarlet-fever patients and grown for some time upon artificial culture media are specifically agglutinated in the great majority of cases by an immune serum obtained from these streptococci, according to P. MOSER and C. P. v. PIRQUET (Centralbl.

f. Bakt., Oct. 9, 1903). The phenomenon is typical both microscopically and macroscopically. Attempts at serodiagnosis, similar to the Widal reaction, were then made, with partial success. Distinct agglutination was obtained in scarlet fever in 54 per cent.; in other affections in only 11 per cent. The more severe cases of scarlet fever give agglutination more readily. Distinct clumping was also obtained in meningitis, perityphlitis and with placental serum, but never in the dilution of one to eight.

Anatomical Lesions after Ingestion of Organic Extracts.—There are very many articles in literature upon the physiological action of the various organic extracts but hardly any upon the lesions they produce when injected. In a preliminary report, G. GHEDINI (Centralbl. f. Bakt., Oct. 9, 1903) records some results he obtained with pancreas, thyroid, thymus, brain, testicle, ovary and suprarenal gland. The axillary and inguinal lymph-nodes were found much swollen, liver, kidneys and spleen were in an inflamed condition with infiltration, degeneration and vessel changes and the thyroid was hyperfunctionating. Other organs, even if they corresponded to the organ injected, showed no change. Probably the lesions are a result of the liberated nucleoproteids which act as non-specific toxins. This would explain why organs which normally free the body from poisons are most particularly altered.

Meningococcus in the Nose.—It is well known that pneumococci are frequently found both in nose and mouth of individuals not suffering from pneumonia, and the article of F. T. LORD (Centralbl. f. Bakt., Oct. 9, 1903) proves that the meningococcus may occur in the same secretions without meningitis. Organisms present in the nose and resembling this diplococcus in morphology and staining reaction cannot be accepted as meningococci unless the diagnosis is confirmed by cultures, in view of the close resemblance which exists between the meningococcus, gonococcus, pneumococcus and *Micrococcus catharrhalis*. In Lord's patient the process began as an ordinary coryza with lacrimation, headache and prostration. The nasal secretion, at first watery, became purulent in a few days With more abundant discharge, the general symptoms did not abate and it took over three weeks before the patient was again able to work.

Cause of Ekiri.—In the dejections of patients suffering from ekiri, a peculiar form of dysentery of Japan, S. ITO (Centralbl. f. Bakt., Oct. 9, 1903) discovered a pathogenic bacillus which morphologically resembled the colon bacillus. It was decolorized by Gram, possessed more active motility than the colon bacillus, did not fluidify gelatin, generated gas in the presence of glucose, did not coagulate milk and was further marked by a much delayed indol reaction. This germ was never found in the feces of healthy individuals. By adding blood-serum of patients who had recovered, a distinct agglutination took place but the serum of healthy individuals or of those who had suffered from dysentery, acute enterocolitis with fever and allied diseases had no effect. The blood-serum of recovered patients did not cause clumping of the dysentery, typhoid or colon germs. The absolutely specific character of the bacillus could also be demonstrated by inoculating animals.

Studies upon Smallpox.—In the blood removed aseptically from the heart of patients who had died of smallpox H. DE WAELE and E. SUGG (Arch. Internat. de Pharmacodyn. et de Therap., Vol. 12, fasc. III and IV) discovered the streptococcus in pure culture. Their number varied with the stage of the disease and was greatest with the papular and papulovesicular stage. During life they could also be found in the blood withdrawn as well as in the vesicular eruptions. This streptococcus was agglutinated by the blood of all patients suffering from variola, and conversely the serum agglutinated any of the streptococci isolated from other cases of smallpox, but not other streptococci except such which were specific for diseases which the patient had passed through. The serum of every vaccinated individual also agglutinated this streptococcus but less so tnan after an attack of the disease. The serum of non-vaccinated individuals or of newly born infants possessed no agglutinating power; this developed only and increased during the course of the disease. The various antistreptococcic sera on the market did not agglutinate the variola germ but with the serous exudate of the vesicles, distinct clumping could be obtained. The germs were also abundant in the crusts and in the air of the wards and sick-rooms. It is probable that it gains entrance into the system by the respiratory passages and in two-thirds of the cases the disease begins as an angina with infectious secretion. This angina is simultaneous with the first rise in temperature. The streptococci then pass into the blood and are arrested in the skin (papular stage), where they proliferate (vesicular stage and second rise of temperature). This peripheric infection is followed by an invasion of leucocytes (pustular stage) and as the epidermis separates under the lesion, the pustules dry out and become converted into crusts. One can also find the streptococcus in postvariolous abscesses and a postvariolous septicemia may be due to this germ which, however, undergoes changes which tend to alter its characteristic properties and which can be demonstrated by animal experiments. A streptococcus can be isolated from the various vaccine viruses which present the identical properties. It is not agglutinated except by the serum of vaccinated or variolous subjects. The addition of glycerine to the virus, especially when this is old, makes it difficult to demonstrate the organism by simple culture. The plurality of streptococci is rendered certain by the discovery of the germ of smallpox and it may soon be possible to separate it into distinct groups. An efficient serum diagnosis and serumtherapy is promised in the near future.

The Influence of Potassium Sodium Tartrate on the Circulation.—A contribution to the knowledge of this subject is made by F. KLEEBERG (Am. Med., Oct. 17, 1903), who employed dogs for his experiments. In each case the animal was given 0.02 gm. (¼ gr.) of morphine sulphate before beginning the administration of ether. The canula was invariably introduced into the carotid artery for determining the blood pressure, and the salt was injected into one of the crural veins. In the author's estimation these experiments prove that potassium sodium tartrate, when injected intravenously in small amounts (up to 30 mg. per kilogram of dog), causes a fall in the blood pressure and an irregularity in the rhythm of the heart's action. This may be accompanied by a primary slowing of the heart's beat, but the dominant action is to cause an increase in the rate of pulsation. The fall in pressure occurs even though the quantity of salt injected contains less than 3 mg. of potassium per kilogram of dog. If the amount introduced is larger and yet insufficient to cause complete paralysis of the heart, the fall of blood pressure is accompanied by a slowing of the heart. If the salt is introduced in comparatively large quantities, the animal quickly expires, owing to paralysis of the heart, respiration continuing for some moments after the heart has been arrested in diastole. It was also found that neutral sodium tartrate, when introduced intravenously in moderate amounts (about 50 mg. per kilogram), stimulates the heart, causing a rise in blood pressure with a slight increase in heart rate. He believes that

the depressing factor is the potassium ion, and that the sodium and tartaric acid ions are without influence in causing the depression.

The Physiology and Pharmacology of Silicic Acid.—It has been generally believed that silicic acid is a comparatively unimportant substance from the standpoint indicated. H. SCHULZ (Deut. med. Woch., Sept. 17, 1903) has found that the administration of the acid in the human subject was not followed by any effects on the respiratory or vascular systems, but that small amounts caused marked derangement of the nervous system, including headaches, vertigo, somnolence, with an inability to concentrate the attention, nervousness and irritability, uncertainty in gait and tremor of the hands. Cutaneous effects consisted of an eruption of acne pustules or papules, and also hyperidrosis, with an acid perspiration and desquamation. The hair manifested a tendency to drop out and the nails to grow faster. The digestive disturbances consisted of flatulence and colic, alternating constipation and diarrhea. In both man and animals the stools were remarkably yellow. Diuresis was not noted unless the acid had been taken a long time. In some cases polyuria developed with smarting pain on urination, while in others there was retention, the urine being concentrated and of a red color, until diuresis had become established. The patients complained of a feeling of weight in the legs and were easily fatigued. Pains in the tibiæ were also noted and the joints were stiff and ached, suggesting the symptoms of lead poisoning.

Hernia Inherited from Mother's Side and Polydactylism from Father's.—An interesting report is presented by B. K. BAUER (Prak. Vrach, Sept. 20, 1903) touching upon a male child, one year old, in whom the author discovered a right inguinal hernia the size of a goose egg, which the mother observed when the infant was four weeks old. The small fingers of the child's hand show traces of supernumerary members which had been severed soon after birth. The middle and ring fingers are grown together by the aid of an intervening membrane, while the large toes are so wide as to give the impression that they were made up of two, and the appearance of the double nail lends the more credit to this belief; the middle and second toes are grown together up to the phalangeal joint; but the toes in general are quite movable. The boy's brother, a child of two, has a left inguinal hernia, which also appeared for the first time when he was but one month old. A membrane unites the middle and ring fingers of both hands, but the fingers are fully developed. The toes are just as large and wide as those of the other child. The last toes of either foot have marked supernumerary members. According to the mother's statement neither she nor her husband ever had hernia, while her father is at present suffering from hernia, which made its first appearance during the first month of his life, two of her uncles also have hernia, which were noticed at the same age as in her grandfather; a similar state of affairs is seen in four of her cousins, so that in general it may be said that the family on the mother's side shows a predisposition toward inherited hernia. A similar predisposition as regards polydactylism is noticed in the family on the father's side, thus: The father himself has six fingers on either hand; the middle and ring fingers of the left hand are grown together, the toes are large and wide; the same abnormalities are seen in his father—that is, the children's grandfather, whose father in his turn presented a similar appearance. It was impossible to elicit any more positive history as to similar abnormalities in other branches of the families. Both children were operated on for hernia and syndactilia successfully.

NEUROLOGY AND PSYCHIATRY.

The Nature of Inhibitory Processes within the Nervous System.—A review of the current theories on inhibition, a new hypothesis as to the nature of this phenomenon in the nervous system and an experimental support for the same, are discussed by W. MCDOUGALL (Brain, Summer, 1903). The first theory as to the significance of inhibition was put forth by Hering, who in holding that protoplasm is the seat of two simultaneous antagonistic processes, namely, anabolism and catabolism or assimilation and dissimilation, suggested that inhibition would correspond to the latter. According to Gaskell, who worked out independently a similar theory, increased anabolism tends to inhibit the vital manifestations, the effects of catabolism, only by checking the rate of catabolism. The view taken by Mercier, in his paper on "Inhibition," is that this phenomenon consists in the blocking of the paths of discharge of "nerve centers," the resistance of such paths being raised above the normal in some way. A view long ago proposed by Wolkmann was that inhibition is a process of interference of waves of nervous action in a manner analogous to the interference of sound and light waves. According to the author, inhibition in the greater part of the nervous system, all the part concerned in the control of the skeletal musculature, consists simply in the cutting off from the tract inhibited of the excitatory impulses by which alone its activity can be maintained. The principle of psychology, that the mind can attend to only one object at one moment of time, lends support to the view that the inhibition of a mental process is always the result of the setting in of some other mental process, or, in other words, that inhibition appears always as the negative or complementary result of a process of increased excitation in some other part. Inhibition may, therefore, be regarded as essentially the result of a process of competition. The phenomena of inhibition in the spinal cord and the facts of "reciprocal innervation," as established by Sherrington—namely, that when an excitatory impulse is sent along a motor nerve, an inhibitory impulse is transmitted to the spinal centers of the antagonists of the contracting muscles—all tend to support this so-called "drainage" theory of inhibition, whose significance would appear to depend upon the fact that a limited amount of vital energy is at the disposal of the nervous system, so that when this energy is sent along certain channels, it must necessarily be withdrawn from other quarters, which withdrawal would constitute the phenomenon of inhibition.

PEDIATRICS.

The Glycogenetic Function of the Child's Liver in Pertussis.—The work of Crisafi having suggested that a reflex stimulus might be sent from the central nervous system to the liver by reason of the irritation of the laryngeal end filaments of the vagus in pertussis, and produce much the same effect upon the glycogenetic function of that organ as do puncture of the fourth ventricle, lesions of the vagus, pons, etc., D. BENEDETTI (Riv. di Clin. Ped., September, 1903) has sought to solve the question of insufficiency of the liver's glycogenetic function in pertussis by administering to 13 children affected with that disease from 1 to 1½ ounces of levulose and testing the urine passed four hours after its ingestion. A positive reaction to phenylhydrazin showed the presence of levulosurea in 12 of the patients; and the author accounts for the negative result in the thirteenth upon the ground of a more active combustion going on in the organism in this case owing to the high temperature (103° F.). Some enlargement of the liver was apparent in all the patients. The results

of this investigation, in the author's opinion, justifies the belief that the glycogenetic function is insufficient in children suffering with pertussis.

Leucocytes in Summer Diarrhea.—The healthy infant has about 13,000 leucocytes in the cubic millimeter and the differential count shows that about 40 per cent. are polynuclears, 55 per cent. are lymphocytes and about 5 per cent. are mononuclears. J. ZAHORSKY (N. Y. Med. Jour., Sept. 12, 1903) has investigated the leucocytes in a large number of cases of infant diarrhea and has found that there is an increase in the number of leucocytes in nearly every case, but the increase is too variable to be of any diagnostic importance. There is, however, one change which stands out prominently, and that is the relative increase in the polymorphonuclears and the decrease in the lymphocytes. This is of importance, because it is found to be of value in prognosticating the severity of the attack. A marked increase in the number of polynuclear leucocytes means that the child is badly poisoned, whatever the other signs may indicate.

GENITO-URINARY AND SKIN DISEASES.

Acne Rosacea.—The commencing erythema of acne rosacea is a very troublesome and disfiguring complaint, especially to ladies. The local treatment is most important. H. S. PURDON (Dublin Jour. of the Med. Sciences, Sept. 1, 1903) uses an ointment containing 10 grains of the iodide of cadmium in one ounce of vaseline rubbed well into cheeks and nose at night, and washed off next morning with hot water and an overfatted soap, accompanied by massage of all the affected skin. The iodide of cadmium does not stain the skin and is an excellent local stimulant. If too strong it will irritate.

Effect of Light and Heat Rays on the Temperature of the Skin.—An interesting series of observations have been made in a series of about one thousand cases with the aid of Herz's apparatus, by E. SOMMER (Berl. klin. Woch., Oct. 5, 1903). This apparatus is essentially a differential air thermometer, furnished with an alcohol manometer. Incandescent electric lights in blue, red, yellow and green globes were employed, the lamp being held about 10 cm. from the skin for a period of ten minutes. It was found that the skin over chronically inflamed joints was lower than on the healthy side, unless an acute exacerbation of the process was present, in which case the relations were reversed. Under the influence of warmth and light radiation the temperature of the side treated always rose above that of the other side; but there were certain cases noted in which the temperature after exposure to the rays was less on both sides than before. Radiation of this type does not produce a reaction in the sense of a cooling, with the same regularity as results from the application of heat and cold by other methods. The effects of the rays with a short wave length, are of longer duration than those with long wave lengths. After two or three hours the relations change, the side exposed seems colder than the other, a condition which is apparently due to the reactionary rise on the side which was not exposed.

Abnormal Frequency of Urination Treated with Epidural Injections.—Where abnormally frequent urinations are due to disturbances in the bladder innervation, Fernand Cathelin, of Paris, devised the operation of epidural injections and obtained such good results that considerable work has been done recently along similar lines by F. C. VALENTINE and T. M. TOWNSEND (Med. Rec., Sept. 26, 1903). The eight cases reported were all patients at the Manhattan Hospital West for the insane. They were all adult women and had histories of wetting the bed and clothing frequently for some time previously. The injections are made into the sacral canal between the periosteum of the vertebræ and the dura mater. The canal is reached through its opening in the sacrum. The patient is placed in the Sims position, the area sterilized and the small osseous tubercles just below and to either side of the last palpable sacral spinous process are made out. The needle of an aspirating syringe is then thrust through the skin drawn tightly between these two tubercles, the needle being held at an angle of 40° to the sacral curve until it passes through the membrane covering the opening of the canal when it is lowered to 20° and pushed on into the canal. Five centimeters of sterile salt solution were usually injected at first and later ten or even fifteen. These injections were made at intervals of about one week and favorable results followed immediately in all eight cases upon whom the injections were made. These cases have not been followed very long, but most promising results have thus far been obtained. The injections seem to be in nowise dangerous to the patient, and are no more painful than any hypodermic injection. The immediate effects are rarely even disagreeable. The rationale of the treatment is not fully explained and is probably not wholly understood.

OBSTETRICS AND GYNECOLOGY.

Ovariotomy During Pregnancy.—The patient entered the hospital because of a large tumor in the abdomen. On examination BAIKOFF (Prak. Vratch, Aug. 30, 1903) found the patient, a peasant woman, thirty years old, to be of good appearance and nutrition, but with an abdomen of such dimensions as to make any thorough examination of it almost impossible. It presented the appearance of pregnancy, palpation elicited an elastic, fluctuating tumor, its upper end toward the gastric region, the lower reaching down into the pelvis. With the patient on her back there was no diminution in the size of the tumor; percussion brought out dulness. In the lower portion of the abdomen another swelling was palpated emerging from the pelvis and rising to almost the middle between the umbilicus and the pubis; this feels like the uterus. Combined examination corroborate the above, and with the linea alba, pigmented areolæ and the condition of the vaginal walls a diagnosis of pregnancy of four months was made in addition to cystoma of the left ovary. In view of the rapid growth of the swelling, as well as of the gravid uterus, immediate operation was advised and performed. Incision was made in the median line beginning with a point two fingers above the umbilicus down to the same distance from the pubis. On opening the abdominal cavity the pregnant uterus was seen in the lower portion of the wound, while the upper was occupied by a part of the tumor beyond it. The size of the swelling necessitated puncture by a Spencer Wells trocar and the contents, a thick, gluey fluid of a dark color mixed with pus, evacuated. The emptied cyst was then brought outside and separated by cutting through its pedicle. The abdomen was then closed and aseptically bandaged. The course postoperatively was uneventful. On the fifteenth day patient began to suffer from strong uterine contractions and hemorrhage. In anticipation of an impending abortion extr. viburnum prunifol. fl. was administered, twenty drops four times a day, and in five days patient left hospital entirely recovered (no abortion having taken place). Author saw patient again in two months, when the pregnancy was continuing normally, but does not state as to the termination of same.

Gonorrhea in the Female.—A series of questions concerning some of the more interesting points relative

to gonorrheal infection in women was submitted to several distinguished gynecologists, and the answers embodied in an article in the Internat. Med. Jour. for Oct., 1903. The proportion of pus tubes secondary to gonorrhea encountered in the various practices varied from 12 to 85 per cent. Radical surgical treatment alone gives hope for cure unless the infection is limited to the urethra and Bartholinian glands, but even with extensive operation the gonococcus may remain hidden in the deeper layers of the vagina, urethra or glands. The fact that pregnancy may follow is no proof of a radical cure. Vaginitis is rarely of gonorrheal origin, except in children; in adults it only constitutes about 10 per cent. Endocervicitis is best treated by the application of tincture of iodine, argyrol 30 per cent., negative galvanism, or carbolic acid. Repeated applications can thus prevent extension in recent cases. For corporeal endometritis, topical applications are generally not admissible, unless the os is wide and drainage perfect; it is generally better to use a double-current catheter with boric acid solution or weak iodine. The opinions were divided concerning hysterectomy for pus tubes, the majority do not practice removal of the uterus and are even in favor of conservative treatment for tubes and ovaries. Microscopical examination is often the only safe way of diagnosing urethral gonorrhea. Wherever the discharge is taken from, pressure should always be made upon the parts so as to compel the compound racemose glands to discharge their deeper contents. Gonorrhea extends to the endometrium, tubes and peritoneum in about 5 per cent. of those infected, but deaths are very rare.

EYE, EAR, NOSE AND THROAT.

An Operation for the Removal of Tonsils.—When the hypertrophied tonsils are not attached to the pillars, no difficulty will be experienced usually in removing the offending organs by means of the various tonsillotomes. W. H. STEERS (Med. Rec., Oct. 3, 1903) believes that in those cases where there are a number of adhesions to the pillars these instruments are unsatisfactory, as they leave a large part of the tonsil behind. In these cases he recommends the use of a knife and forceps to assist in dissecting out the tonsil. He employs a hook-like knife modeled from the lines of a strabismus hook, making the handle longer and stouter and giving a knife edge to the concavity and end of the hook. The tonsil being well exposed by mouth gag and tongue depressor, the tonsil is seized by a Kelly volsellum and drawn toward the opposite side. The hook-knife is then passed between the tonsil and the anterior pillar, taking care to cut outside the tonsil and not through it. The finger is then introduced into the wound and using it as a blunt dissector the tonsillar mass is turned out, leaving it attached to the posterior pillar and by mucous membrane only, which is divided by the ordinary blunt pointed tonsil bistoury. All the tonsillar tissue may thus be removed and there need be no fear of a recurrence of the trouble.

Rational Treatment of Corneal Ulcers.—In all cases of corneal ulceration there is an infiltration of a circumscribed area and more or less suppuration with a consequent loss of tissue. This process irritates the nerve filaments in the cornea and causes the blood vessels to dilate, which brings more blood to the iris and conjunctiva. This causes the escape of albumin into the anterior chamber, makes the excretion of aqueous more difficult, and raises tension. W. L. PHILLIPS (N. Y. Med. Jour., Oct. 3, 1903) has obtained the best results in the treatment of these conditions by using means to contract the arteries and thus diminish the vascularity of the parts. First, he uses suprarenal extract dropped into the eye at least three times a day and as the disease increases, the lung must be instilled more frequently up to ten times daily, depending upon the absorption of the remedy and its action upon the heart. Secondly, because there is almost always a germ present a mild and soothing antiseptic such as boric acid should be frequently employed during the day. To assist in building up the lymph corpuscles and bringing about resolution, he has found that a 5-per-cent. solution of nuclein gives great assistance, and it should be combined with and used in the same way as the suprarenal solution. Furthermore, the conditions which have a bearing upon the local disease must be looked for and treated, for frequently it is found that there is an important predisposing cause in the form of caries, adenoids, hypertrophied tonsils, turbinates, etc. The above method seems to give much better results than has previously been obtained by the use of atropine, cocaine, hot fermentations, yellow oxide ointment, etc., which either tend to increase the vascularity, increase tension or prove too iritating to the conjunctiva.

Treatment of Ozena.—That the *Bacillus mucosus* is the cause of ozena is the belief of A. CASASSA (Rev. internat. de Therap. Phys., Oct. 1, 1903), who has studied the effect of a number of bactericidal agents upon this germ in the hopes of discovering a cure. White or colored sunlight or light from artificial sources had very little effect upon the growth of the germ, but radiotherapy proved singularly effective. The virulence of the exposed cultures was very much diminished and white muci survived otherwise fatal injections a much longer time. Clinically, the germs are killed upon the nasal mucosa, glandular activity is stimulated and a permanent cure is established.

MEDICINE.

Localization of Pneumococci.—Bacteriological examination proves that the pneumococci are normally present on many mucous membranes and may give rise to disease in almost every organ of the body. They abound in the mouth, since the alkaline secretion here offers especially favorable conditions for growth. Normally, the epithelial cells offer sufficient protection, so that they must be regarded as harmless. It is surprising that so few cases of tonsillitis depend upon a pneumococcus infection. I. O. WANDEL (Deutsch. Arch. f. klin. Med., Vol. 78, Nos. 1 and 2) could only find one or two instances among several hundred. The course of the angina is characteristic in that onset and defervescence are sudden and nephritis and joint affections frequently follow. Locally an acute catarrhal, erythematous or pseudomembranous inflammation exists or the tonsil may suppurate. From the mouth the germs may invade the salivary glands, so that a parotitis complicating pneumonia need not necessarily be metastatic. In the nose and nasopharynx the germ is usually as abundant and harmless as in the mouth, but an acute catarrhal rhinitis with slight fever and of short duration may be set up. That general sepsis may, however, follow is evident from a quoted case: A patient died in acute collapse two days after a hemorrhage from a septal perforation was checked, and at autopsy virulent pneumococci abounded in the spleen. The accessory sinuses and meninges may also be invaded, particularly if congenital or traumatic defects exist in the roof of the nose, though the natural channels may also serve as passage-way. The pneumococcus also plays an important rôle in the etiology of otitis media; thus the author found it in 14 out of 15 cases, and frequently in the pus of mastoiditis, periphlebitis, and otitic brain-abscess. In the otitis of measles,

diphtheria and scarlet fever the pneumococcus is usually accompanied by streptococci. The site of preference is pulmonary tissue, but increased virulence is not sufficient here to set up an inflammation; there must also be a diminution of resistance, such as induced by trauma or cold. It is less commonly known that catarrhal pneumonia, peribronchitis and even catarrhal bronchitis are usually caused by the pneumococcus. From the lungs the infection may travel toward the pleura or downward into the peritoneum. Migration through the diaphragm is possible only with diseased pleural endothelia. General peritonitis is rare, for the peritoneum will often show no change or else there is a marked tendency toward encapsulation, and it is probable that many obscure cases of perihepatitis and perisplenitis were originally secondary to a pneumonia. Pneumococci are frequently found in the blood in uncomplicated cases, but an inundation occurs only rarely, and such patients usually die of their sepsis. The portal of entry is not difficult to find since there is a free communication between the alveoli and the capillary system, especially in the stage of red hepatization. In most fatal cases the cocci may be found in the bone-marrow of the vertebræ. It follows that metastases are usually encountered only in the severe cases. Their usual localizations are the endocardium, meninges and joints, especially the ankle, hip and hand. Since the pneumococcus does not find a favorable medium for development in the blood, it need not surprise that infarcts secondary to endocarditis are frequently non-infectious, except in the lungs, where the tissue is already so damaged that suppuration is common. The endocarditis is often characteristic in that the vegetations are very large and brittle, so that portions are easily broken off by the blood. Protracted cases, lasting four to eight weeks, are more apt to suffer from this complication than the typical ones. It is rare to find germs here in the lungs, since they have all migrated into the bronchial glands from where they reach the blood directly or through the thoracic duct. This will also explain why the right side of the heart is more frequently involved. The natural filtering apparatus of the lung will become insufficient as the cocci proliferate and obstruct the lymph-channels so that resolution is delayed and the pneumonia runs a protracted course. In 50 per cent. of the cases the valves are predisposed to inflammation, in the other half the resistance is probably reduced by the general intoxication or by the trauma, which the valves are subjected to by the forcible impact of the thrombotic masses.

THERAPEUTICS.

The Therapy of Radium.—In concluding his review on the physiological and therapeutic value of radium, N. A. NEVZOROFF (Prakt. Vrach, Sept. 20, 1903) calls especial attention to Dr. S. V. Goldberg's report on the use of this substance in the treatment of rodent ulcer. In one case where the ulcer occupied an area extending from the left wing of the nose up to the inner canthus of the eye, and was still rapidly progressing, there was observed a very marked improvement even as early as the sixth day after the first application of a quantity of 75 mgm. of the substance enclosed in a box and allowed to act during a period of one hour and a half; the granulations at the point of application became thicker and firmer, took on a pale, yellow color, and ceased bleeding. Eight days afterward there appeared a necrotic spot, which, however, healed over in a week. The further sittings were at one week's interval, and of one-half hourly duration. Altogether, the patient was exposed to the radium rays for seven hours during a period of two months and a half. It was shown from observations that the effect of the rays resulted in a sclerotic process of the granulations and rapid epidermization of the cicatrix. Thus the effect obtained leaves therapeutically nothing better to be desired. A similar favorable result was seen in another case of rodent ulcer in a woman forty-eight years old. It is difficult to determine which bundle of rays that make up in their complexity the radium rays is responsible for the therapeutic effect. One thing, however, is certain, and that is, that in radium one has a very efficient therapeutic agency, easily applied and not requiring any complicated or costly appurtenances. Moreover, as contrasted with the X-rays the rays of radium are under the perfect control of the operator, and thus their effect can be gradually increased or diminished, and may be employed at a certain distance.

Therapy of Diabetes Mellitus.—In the treatment of diabetes D. LENNE (Therap. Monatshft., Oct., 1903) believes that it is just as important to restrict the proteids as it is to limit the amount of carbohydrates, even in the mildest forms of the disease. He does not believe that diabetic coma is directly caused by β-oxybutyric acid in the blood for many cases have been treated with alkalies for months without averting the fatal catastrophe. The acidification is merely one of the symptoms of a grave disturbance. The assumption that acetone, etc., result from the splitting up of fat is opposed to the observation that large amounts of fat are well tolerated in the gravest cases. Little good was seen from the more recently recommended drugs, such as yeast and melithan, and the writer still prefers the natural mineral waters. Perhaps a pancreatic extract containing only the substance of the islands of Langerhans will yet prove efficient.

Action of Nauheim Baths.—Bathing in the lukewarm, carbonic acid water of Nauheim has very little effect in raising blood-pressure, according to O. REISSNER and G. GROTE (Münch. med. Woch., Oct. 6, 1903). Likewise respiration is but slightly influenced. The area of cardiac dulness percussed smaller, but by also percussing the lungs it was found that this was really due to a dilatation of the lungs. The vital capacity was determined after every bath, and was found slightly diminished. All these phenomena are not due to the carbonic acid or the salt, but to the temperature (34 to 32° C.) of the bath, and exactly the same results were obtained with plain baths of the same temperature or by the application of an ice bag to the precordium. The advantage of the carbonic acid lies in the dilatation of the cutaneous vessels, which it induces, thereby enabling the reaction which normally occurs after every cool bath, to already take place within the bath. The contraction set up by the temperature will therefore be only transient and the patients will soon experience a feeling of warmth. The work of the heart will also be rendered much easier and it is probable that an actual diminution in size occurs, though this can be ascertained only by the X-rays.

The Treatment of Sydenham's Chorea with Large Doses of Arsenic.—Some years ago the well-known French pediatrist Comby recommended the employment in chorea of such large doses of arsenic that they seemed at first rather to be fraught with danger, but subsequent employment proved them to be of great benefit in these cases. M. O. SHAIKEVITCH (Roussky Vratch, Sept. 30, 1903) has subjected this method of treatment, as modified by Tilatoff, of Moscow, to a thorough test. He reports some six cases of Sydenham's chorea, and is forced to the conclusion that there seems to be no foundation either in theory or in fact for the employment of large doses of arsenic as recommended by Comby and Tilatoff. In fact, there are some authors who report a positively deleterious effect from such an employment of arsenic.

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

COMMUNICATIONS in the form of Scientific Articles, Clinical Memoranda, Correspondence or News Items of interest to the profession are invited from all parts of the world. Reprints to the number of 250 of original articles contributed exclusively to the MEDICAL NEWS will be furnished without charge if the request therefor accompanies the manuscript. When necessary to elucidate the text illustrations will be engraved from drawings or photographs furnished by the author. Manuscript should be typewritten.

SMITH ELY JELLIFFE, A.M., M.D., Ph.D., Editor,
No. 111 FIFTH AVENUE, NEW YORK.

Subscription Price, including postage in U. S. and Canada.

PER ANNUM IN ADVANCE	$4.00
SINGLE COPIES	.10
WITH THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES, PER ANNUM . .	8.00

Subscriptions may begin at any date. The safest mode of remittance is by bank check or postal money order, drawn to the order of the undersigned. When neither is accessible, remittances may be made, at the risk of the publishers, by forwarding in *registered* letters.

LEA BROTHERS & CO.,
No. 111 FIFTH AVENUE (corner of 18th St.), NEW YORK.

SATURDAY, NOVEMBER 28, 1903.

DANGERS OF THE SINGLE "L" MOTORMAN.

A RECENT fatal accident on one of the important elevated systems of the Greater City of New York calls attention once more to the utter inadvisability of trusting large trainloads of passengers, especially during the excitement of the rush hours of the day, to a lone man at the head of the train, with regard to whom there can be no proper continuous and responsible guarantee as to mental and physical health. The ferry-boats plying the waters near the Greater City have now for a number of years been compelled by law to have two men in the pilot house, and it is eminently advisable that this same regulation should be enforced with regard to elevated trains. Practically all the reasons alleged for the necessity for this on boats hold also for trains.

Many things may happen unexpectedly to a man that will make his position of motorman likely to be a source of danger for those whose lives are dependent in all emergencies on his good mental and physical condition. It must not be forgotten that sudden death in our modern life occurs so frequently as to make the possibility of its happening something always to be counted on when the lives of many hundreds of people are dependent on a single individual and that individual so placed that at any given moment he is not under the surveillance of someone assuming a like responsibility with himself. During the ordinary hours of the day usually, at least one of the other trainmen is in position to note any presages there may be of impending danger. During the rush hours, however, the crowd makes this absolutely impossible, and passengers themselves are too uncomfortable, as a rule, to take any precautions looking to their safety.

It is not an unusual thing to hear of engineers being overcome in the cabs of their engines, and the presence of the fireman proving the only means of averting a disaster. It is not necessary that complete unconsciousness should occur, much less that death should take place for a dangerous state of affairs to develop. A workman suffering from the incipient stage of some severe internal ailment, such as pneumonia, or an acute attack of nephritis, may well overestimate his strength in the desire to make a full day, if possible, or he may think that his giving up is likely to be a source of inconvenience to other workmen. Especially if a trip is once begun the motorman is likely to hang on grimly, at least, until the end of it, in order not to block traffic in any way. Under these circumstances his mind is not likely to be in any condition to grasp unusual situations, or realize what must be done in an emergency.

In the last few years there have been not a few cases reported in which railroad engineers on trunk lines, apparently in good health at the beginning of a day's work, have suddenly become irresponsible during the course of a trip, have run their trains by stations where they were scheduled to stop, and have only been saved from bringing passengers into serious danger, to say nothing of travelers at crossings over which the train was run at high speed, by the immediate action of the fireman in the cab with them. Such sudden insane developments are infrequent, and yet they may happen, and even the most carefully repeated medical examinations of the men's condition would not entirely eliminate this source of danger. In cold weather, particularly, it is not impossible that men may, when not feeling well, take intoxicants to such an extent as to paralyze their power for meeting emergencies. This represents another type of mental derangement that cannot be entirely guarded against by ordinary supervision.

There are, therefore, many reasons why the presence of a single man at the head of a long, heavy train, carrying its hundreds of passengers during the rush hours should not be considered sufficient. The recent accident represents the best

possible commentary on it. The blame is put upon the dead motorman. Just how he should have come to make the mistake he did seems utterly inexplicable. It is possible that he was not alive, or was unconscious, at the moment when the collision came. He seems to have made no effort to escape, notwithstanding his realization, if he were conscious at all, of the awful danger in which he was placed. There has even been a hint that the man had occasionally suffered from attacks more or less epileptic in character in which there had been some diminution of right mental feeling and occasionally even losses of consciousness. Such things will happen and even true epilepsy may develop insidiously late in life. With the risk of immediate discharge before them such sufferers are prone to dissimulate and, without a posing passengers to cling to their occupation posing passengers to, cling to their occupation until some mishap betrays them.

It will be said that automatic brakes are installed to meet such emergencies and that if the motorman should take his hand off the controller the cars stop of themselves. The accidents since the transformation of the power to electricity do not confirm this and it seems doubtful if safety contrivances can be invented that will prove sufficent to avert the manifold possibilities of danger. We are about to have an immense extension of electric traction with the opening of the subway in the next few months. It is important that a proper policy in this matter should be initiated before some awful accident leads to an outburst of popular feeling that will compel this measure of safety. It is unfortunately only after some terrible casualty involving the loss of many lives and an immense amount of human suffering that railroad ameliorations looking to greater safety have come. Let us hope that this will not need to be the case in the present instance. During the hours of heavy traffic, at least, all the responsibility should not rest on a single individual or the company and its patrons will inevitably have cause to regret it.

SURGICAL TREATMENT OF EXOPHTHALMIC GOITER.

ALTHOUGH it is generally held that fully fifty per cent. of patients with Graves' disease recover, either spontaneously or under the care of the internist, it is a most distressing fact that the disease in the remaining half persistently refuses to yield to any known medication.

The three cardinal symptoms of the disease, the tachycardia, the exophthalmos and the thyroid tumor may or may not all be present. If, however, any one manifests itself to the degree which is common in the obstinate and aggravated forms, it is in itself sufficient to render the patient's life miserable and utterly to prevent him from earning a living. This is often a very sad element in the disorder, inasmuch as the disease is most frequent among young girls.

There is accordingly every reason why continued effort should be made and all research encouraged in the lines of surgical therapy for these otherwise hopeless cases. The criticism may be made that the mortality is high. This is admittedly true even in the hands of men who are pioneers in this work in America.

It is not long since Kocher reported the relief of 60 per cent. of fifty odd cases which he had operated upon for exophthalmic goiter. In all of these he performed a simple hemisection of the gland and in all but six he removed it under a local anesthetic. He reported four deaths in all, and these occurred in the six cases operated upon under major anesthesia. Seventy-six per cent. were cured, 14 per cent. were improved, 3 3/10 per cent. were slightly improved. He acknowledged no failures.

The reports of what is generally known as the Jonnesco operation of sympathectomy, because, although first suggested by Edwards, it was subsequently popularized by Jaboulay and himself, are so far as they go almost as satisfactory. Jonnesco reports 17 cases, in most of which a bilateral removal of the superior and middle cervical sympathetic ganglia with the nerves was done. Of these cases 13 were operated upon by Jonnesco himself and the remaining 4 by French surgeons. The deaths were due to erysipelas and pulmonary congestion. It is said that 10 were cured, 5 were improved and 2 not improved.

Very recently a third mode of treating this disease has been brought to American notice by Dr. Willy Meyer, who records that Lanz, of Amsterdam, has been feeding his exophthalmic patients on the milk of goats who have had their thyroids removed. These goats became cachectic at once and died in about six weeks. The preparation is now relatively easy of access, because it has become a commercial product. Lanz's reports are said to be accurate. If so, he has made a distinct therapeutic gain.

Dr. B. Farquhar Curtis presented a report on his most recent thyroidectomies and sympathectomies at the recent meeting of the American Sur-

gical Association, and judging from the attitude of the members of this most representative collection of American surgeons, his views on the subject are accepted as a standard of work so far accomplished on this side of the water. He says that in the few months since reading the paper his views have not changed materially, and we may therefore consider quotations from his notes as giving us the most recent surgical data. He says that after performing a number of operations for the relief of exophthalmic goiter by hemisection of the thyroid, he became alarmed at the frequency of acute thyroidism (so-called for want of a better name) and attracted by the immediate good results claimed by Jonnesco and Jaboulay for sympathectomy, he began to do the operation seven years ago and has now performed it in seven cases. Unhappily the results have not in his hands been as good as those he obtained from thyroidectomy, for he has had two deaths from acute thyroidism and one possibly due to anesthesia. All the operations were done under ether. Both sides of the neck were operated on at one time except in one case. Dr. Curtis prefers the anterior incision to the incision posterior to the sternomastoid, because it allows access to the superior ganglia without extending so high, and it gives better cosmetic results. In many cases he resected not alone the first and second, but the third ganglion as well. This, of course, is the most difficult part of the operation, because of the depth of the organ.

As to the possible causes and means of prevention of acute thyroid poisoning following surgical operations upon these cases but little is known. There is usually no indication immediately after operation that this grave sequel is to subvene. The temperature will, however, suddenly rise to 102° F. and will reach 104° F. in twenty-four hours, then continue to 106° or 107° F. With the rising temperature the pulse will rapidly run up to 150 or even 200. "The face will be flushed, the breath hurried and superficial, the patient will be nervous, twitching, tremulous, talking a great deal. Anxiety, however, I have not usually known, the mind remaining clear and calm enough to the end. In some cases coma has been present, but this is unusual. In one case, the patient had apparently been sleeping quietly when he awoke with urgent dyspnea and died in a few minutes of sustained arrest of the heart. Morphine will quiet the restlessness, but we can find no means to quiet the heart. Drugs are useless or even make matters worse. One patient only survived these symptoms a period of forty-eight hours."

As yet no sign has been recognized by which this fatal sequel may be foretold previous to operation. Not alone in the well-known gross clinical symptoms, so generally recognized as belonging to this disease has no difference been noted, but in the more refined symptoms as well; in the tremor of the limbs, the increase of resistance to the passage of electric currents through the skin, and in other minor details. Other symptoms give no information on this important topic. Furthermore, both grossly and minutely there has as yet been presented no characteristic differences in the thyroid of exophthalmic patients which might be used as guides. It is of the very greatest importance that some means should be reached whereby clinicians may more definitely choose cases for operative intervention.

As to the causes of acute thyroid poisoning, Curtis believes that it is in no manner due to the presence of the thyroid secretion in the blood, although it has been claimed that it can be avoided by very gentle handling of the gland at the time of operation. It has been shown that if a case of exophthalmic goiter is subjected to any form of operation, this poisoning is apt to occur. It may be due to some form of shock.

These considerations are chiefly of interest to the operating surgeon. For the general practitioner, it is of importance to note that we are apparently upon the borderland of important surgical developments in the treatment of chosen cases of intractable Graves' disease, and that members of the community who are afflicted with the disorder should under certain circumstances be given the benefit of operative intervention.

THE QUESTION OF MEDICAL CHARITIES.

THE problem of dispensary abuses is in truth as old as the proverbial hills, and it is about as near to solution to-day as it was twenty-five years ago. This is the verdict arrived at by a committee of the Philadelphia Hospital Association, appointed for the purpose of looking into the methods and results of dispensary practice in that city. The data are exhaustive and as a basis for the conclusions arrived at are indicative not only of existing conditions in Philadelphia but, we believe, are quite similar to those that may be obtained in any American city approaching it in size.

Letters were sent out to 481 physicians and to 61 dispensaries asking for an opinion on the defi-

nitions and functions of a dispensary, its abuses, and the remedies or ameliorations, if any are possible. Besides these, ten practising physicians of high repute were asked for an open statement of their personal feelings in the matter. Every one was heard from, and nearly every one held a different idea as to the extent of the abuse and its possible remedy.

Defining a dispensary according to its use one may say that it is a place where the sick poor may find free medical and surgical relief, and by the sick poor is meant that class of people who can buy food but who, by frequent physical disability, cannot buy anything else. There are just three classes who abuse this privilege and they are the patients who can and will not pay, the patients who would but cannot pay, and those who have neither the "will" nor the "can," and each of these has its representatives in every dispensary in the world, no matter where situated. The Philadelphia Committee is possessed of the idea that under the present dispensary law New York has solved the problem of office practice without pay, but no less a man than Dr. George F. Shrady has recently said that: "It may be broadly stated as the result of exhaustive statistical study, that fully fifty per cent. of the patients who apply for free medical aid are totally undeserving of such charity." And this is perhaps too low a figure, in spite of the clerk and the registrar and the chief and the card system. There are hundreds of seemingly honest people who think that a doctor is or ought to be a sort of philanthropic puppet from whom it is perfectly right to exact as much as can be gotten. They forget that from birth until his twenty-fifth year the average physician has been a constant expense to himself or to his family and that no return begins to manifest itself, even in a small way, until the second year after graduation. These same honest ones would never think of picking anybody's pocket, yet to steal a ride in a railway train or to work on the doctor's sympathies are to them altogether justifiable and are marks of real cleverness.

The closing words of the Committee's report are worthy of quotation: "Direct compensation for services rendered by the dispensary physician would be a long step in the right direction and pave the way for other necessary reforms. Until the patient can be cured of trying to get something for nothing, and until the layman and the physician can both be brought to view the objects of the dispensary from the standpoint of the public welfare, radical reforms must be difficult of accomplishment. Indeed, the education of the community to a proper realization of the object for which the dispensary was founded, combined with unselfish and intelligent service on the part of those responsible for their conduct and management, would seem to be the only real solution of the question.

"The abuses of the dispensary resolve themselves very largely into the defects of human character, which can be observed not alone in these institutions, but wherever large numbers of people are brought together. Higher ideals on every side seem the necessary first step in eradicating abuses. Legal enactment and proper supervision will help toward their realization."

It was proposed by nine of those who replied to the circular letter to decrease the number of dispensaries and keep open only those in direct connection with medical schools. So many of such institutions by charging a low fee cheapen professional labor and make the patient feel that he is after all paying well for what he gets. To do this might prove to be an unwise plan, but even with all our free clinics there are lots of "pay doctors" who treat patients privately and receive nothing year after year, because they desire to aid such and partly for the experience they get out of it. Many a young physician who cannot work in a dispensary would be glad to treat the deserving poor in their homes if he could be sure after some such investigation as the Charities Aid Society are in the habit of making that they are really deserving and not shamming. The adjustment of such a plan would indeed seem to be the proper function of such a society. .

Dr. Matthew Woods has spoken clearly and frankly on the question, though we may not entirely agree with him:

"Dispensaries, except in connection with colleges, are an injustice both to the profession and laity. They are crimes and abuses made respectable by being under the protection of law. To relieve both layman and medical man from their burden, stamp them out, as people have no more right to beg under a roof and from people sometimes poorer than themselves, than they have to beg in the open street. When people in this land, except recent emigrants, are so poor that they cannot pay a moderate fee to some struggling physician, their poverty is a crime, deserving punishment rather than encouragement. It is contrary to the spirit of American citizenship to accept anything without rendering a just return."

To the well-established physician it is not a matter of direct interest whether patients are treated free at the dispensaries or not, but to many who are as yet below the half way round of the ladder the question is one of vital importance. Perhaps the incoming administration is looking for just such a chance to show its abilitv in dealing with civic problems.

ECHOES AND NEWS.

NEW YORK.

Diphtheria Epidemic Up State.—In the village of Suffern, Rockland County, diphtheria is epidemic. Twenty-one cases have already been reported, and the Board of Education has ordered the schools closed. A prominent teacher is one of the victims of the disease.

Physicians' Fees and Small Debtors.—That small debtors can be forced by law to pay up was discovered yesterday when Comptroller Grout was notified by a Fulton street firm, with a claim of $7 against Policeman Walter S. Chapman, of the Canarsie station, Brooklyn, that it proposed to garnishee his salary until the full amount was paid. It was found that at the last session of the legislature a bill was passed, which obtained the approval of the Governor, providing that in all cases where a man or woman makes a salary of $20 per week or over an employer, on legal action being taken by the creditor, shall deduct ten per cent. from the salary of the employe until the judgment has been fully satisfied.

Oldest Woman Physician.—Dr. Amelia Wilkes Lines, the oldest practising woman physician in this country, both in age and period of practice, celebrated her eightieth birthday last week in her quaint, old-fashioned home at 285 Washington street, Brooklyn. She presided all the afternoon at a reception at which were present four generations of her descendants and about 200 old friends, patients, their children and grandchildren. "Why did I study medicine?" she said. "Ah, I am too old to tell you that. It was a great many years ago—half a century. One can forget many little things in half a century." The bright smile in the keen, deep set, blue eyes was understood when the story was learned. It is a sacred subject with the pioneer woman physician. Mrs. Lines was born on the Isle of Wight, Nov. 21, 1823, on the country estate of her father, Sir William Wilkes. She was one of thirteen children, and she centered her affection on her oldest brother, William. When Mrs. Lines was still a child her brother entered the navy as a surgeon. When she was about twelve years old, Mrs. Lines came to America to visit some of her father's relatives in Painesville, Ohio. She took up her residence in America at the death of her father. When Mrs. Lines was sixteen years old her favorite brother died and was buried at sea. When the division of his property was made she asked only for the medical library, instruments and diplomas of her brother. After returning to the United States with these treasures she devoted much of her time to reading the books. The diplomas, from the University of Paris, the University of Heidelberg, the National College and University of London, she framed and hung in her library. With such surroundings she naturally became interested in medicine.

In 1842 she was married to Dr. T. T. Lines, in Painesville, Ohio. Two years later they came to New York. Mrs. Lines had continued her independent study of medicine and worked much with her husband. In 1850 it was suggested that she attend a medical college. The bare suggestion of such a thing astounded the president and faculty of the National College of Amsterdam, which has since passed out of existence. However, as Mrs. Lines was young and pretty and the wife of a well-known physician, she was finally admitted to the classes, after passing an examination in which she led over eleven men out of fifteen. In 1853 she obtained a license to practice in the State of New York, the first granted to a woman in this State. Some time after this Dr. De Laverne, who was a fellow student with Mrs. Lines, was licensed.

Judicial Ruling for Public School Vaccination.—The Appellate Division of the Supreme Court for the Second Department, sitting in Brooklyn, handed down a decision on Friday last, upholding the constitutionality of the statute enforcing the vaccination of school children. The decision was given by the court in the case of Edmund C. Viemeister of the Borough of Queens, who sought to compel the Board of Education and J. H. Meade, Principal of Public School No. 12 in Queens, to admit his child to school, admission having been denied because the child had not been vaccinated. It was urged on behalf of Viemeister that the statute was void, being contrary to the provisions of the Constitution. In the prevailing opinion Justice Woodward declares that the statute does not violate the Constitution, as it operates equally upon every person who is or may desire to become a pupil in the public schools, and affords equal protection to all, and adds: "However willing we might be to agree with the appellant that the practice of vaccination is attended with dangers and that its efficacy is a matter of uncertainty, these are matters which should be properly addressed to the consideration of the legislative department rather than to the courts." Justice Hirschberg also wrote an opinion sustaining the statute, declaring that it constituted a legitimate exercise of the police power.

A Most Worthy Charity.—Under this caption the *Commercial Advertiser* speaks editorially of the work done at the Lying-in Hospital. By calling public attention to charities of this sort the daily press could do a great deal toward the stimulation of benevolence in New York, if it were so disposed. We quote in full: "We called attention a year ago to the wise and beneficent work which the Society of the Lying-in Hospital of this city has undertaken in the new building donated and equipped by J. Pierrepont Morgan, and bespoke for it the generous aid of all persons of means who desired to help forward a most deserving and well-managed charity. The building has been in use for less than two years, and during that period has demonstrated not only its efficiency but its great need in the community. During the past year over 5,000 women applied for admission, and 600 had to be denied for lack of accommodation. An average of 94 a month were treated in the hospital, and a monthly average of 224, or 2,693 in all, were treated at their homes by the society's out-patient department. Of the total number treated over 3,000 were foreign born and only 716 native born. These and many other interesting facts are published in the society's annual report, a synopsis of which appears in our news columns. The fact in the report which we desire to impress upon our readers—that is, those of them

who are blessed with ample means—is that nearly 1,500 applicants were denied treatment through the society's lack of funds. It is not endowed, and depends entirely upon voluntary contributions for its running expenses. At present it has only one of its three ward floors in operation, because of lack of means. This floor has sixty-two beds. If all three floors could be put in operation the capacity of the hospital would be raised to 186 beds, and there would be no difficulty in treating all applicants and thus making the institution what its founder intended it should be, an ample free maternity hospital for the poor of the city. Last year's available income for running expenses was $29,000, while the actual expenses were $117,000. This deficiency of $88,000 was necessary in order to keep the hospital open. It is a distinct public misfortune that so necessary and so beneficent an institution should be cramped for lack of funds. It should not only receive donations amply sufficient to permit of its operation to the fullest capacity, but an endowment fund which would insure it for all time against need in this direction. No one can read the society's report without being convinced that among all the many deserving charities of this city none is more worthy than this, for none supplies for the poor and helpless aid of a more grateful or a more vitally necessary character."

Manhattan Dermatological Society.—Regular monthly meeting held on Nov. 6, 1903, at the residence of Dr. W. S. Gottheil with Dr. L. Weiss presiding.

Dr. B. F. Ochs presented a case which he termed prurigo. The skin involvement began in early infancy and has shown itself in recurrent attacks every now and then. The patient, a girl of nine years, now presents numerous papules of varying sizes on extensor surfaces of forearms and legs, also on chest, abdomen and back. The skin is thickened and all over, except on the face, small subepidermic papules can be felt. Axillary and inguinal glands slightly enlarged. A marked seborrhea of scalp was a peculiar feature. The flexor surfaces of limbs were likewise involved. Dr. E. L. Cocks mentioned the latter peculiarity as unusual in prurigo. Dr. Pisko inclined to call it seborrheic eczema. Dr. Gottheil stated that the marked seborrhea was a feature of the case and always present. (Saw case previously.) The induration, the adenitis and chronicity favored diagnosis of prurigo. Dr. Bleiman called it a mild case; the classical signs of well-marked prurigo were absent. Dr. Sobel stated present condition could be accounted for by its chronic course and the adenitis no more than would be expected in any chronic eczema. He termed it chronic urticaria. An exact diagnosis was impossible.

Dr. W. S. Gottheil presented a boy of nine years with psoriasis of palms and soles. Other (guttate) lesions were seen on elbows, knees, shins, scrotum and penis; the finger-nails were spotted and brittle. Condition has been present off and on for six years. Dr. Bleiman stated that without other lesions on the body to be guided by, these cases often pass for chronic squamous eczemas. Drs. Ochs and Crary spoke of the rarity of the condition as an isolated lesion. Dr. Oberndorfer had seen such cases. This one was typical.

Dr. I. P. Oberndorfer shows the following case: Young man of twenty-one years noticed an oval patch on inner aspect of right upper arm, about the dimensions of a 25-cent piece, also a smaller one near left groin. These patches had raised scaly margins and clearing centres. They were then regarded as tinea tricophyton, but the development of a general pale-red macular eruption two weeks later on the body, with slight malaise, changed the aspect of the case, and Dr. Oberndorfer regards it as a pityriasis rosea; the former large oval patch being looked upon as an initial herald patch. Scrapings, under microscope, showed spores but no mycelia. Diagnosis concurred in.

Dr. A. Bleiman presented a case of lepra tuberosum. The patient, a woman, aged forty-two years, was born in Russia, came to this country nine years ago and claims the disease first showed itself when one year in this country. The tumors were of varying size and numbered several hundred. The face showed the typical leontine expression. The condition has remained in a stationary condition for the last three years.

Dr. Gottheil presented the following cases: (1) Marked seborrhea involving hairy parts of chin, face, upper lip and eyebrows. A severe eczematous condition is present with involvement of the hair follicles; the latter was considered secondary. Dr. Gottheil was inclined to think that owing to the marked seborrheic element, a lupus erythematosus may subsequently develop. (2) Case of lichen corneus (shown at October meeting). As some members then suspected a syphilitic origin, patient was placed on large doses of KI and Hg, with absolutely no effect. (3) Case of atrophia cutis propria, involving lower limbs. (4) A case of feigned eruption. This patient was shown at two meetings previously and diagnosis of pemphigus hystericus made. Again presented this evening with additional bullous lesions. Dr. Gottheil is able to state that the lesions were self-induced by carbolic acid applications. (5) A case of mycosis fungoides (also previously shown) was presented to show the marked improvement following injections of Coley's mixed toxines; treated since midsummer and received bi-weekly injections of 35 to 45 drops. Marked reaction followed the first few doses. Photographs of his former condition were shown and, compared with the subject, it is seen that many of the tumors have disappeared and the subjective symptoms greatly improved. The tumors disappear by absorption. Drs. Pisko and Cocks were skeptical as to the ultimate prognosis. Dr. Cocks adding that he also saw good results in the beginning with the X-ray which later had to be discontinued. Dr. Sobel said to relieve subjective symptoms, much must be accomplished. (6) A case of ulcerative luetic, skin lesions in a female patient, whose initial lesion was contracted about six months ago. The wrists showed peculiar verrucous-like lesions.

Dr. R. Abrahams shows a case of tertiary ulcerative syphilis. About eighteen months ago patient had "some trouble" with her left eye and eyesight temporarily destroyed; also had sore throat and severe headaches. Never noticed any lesions on skin, nor gave history of chancre. Patient seen two weeks ago and shows total destruction of the nasal septum with a beginning ulceration and destruction of the palate.

Dr. B. F. Ochs presented this case for diagnosis: A young woman shows a globular mass just in front of right ear; movable and non-adherent; apparently no connection with the parotid; of four years' duration and only recently tends to increase in size. Diagnoses of fibroma lipoma, chondrosarcoma, etc., were made. A second case by Dr. Ochs, was a girl aged thirteen years, with scratch lesions on face and arms. The history of case strongly suggested self-infliction.

PHILADELPHIA.

The Henry Phipps Institute Lecture.—The second of these lectures will be delivered by Dr. William Osler on Thursday evening, December 3, at half-past 8 o'clock, in the Auditorium of Witherspoon Building, Walnut and Juniper streets, Philadelphia. The subject will be: "The Home in Relation to the Tuberculosis Problem."

The Philadelphia Neurological Society.—At the last meeting of this society, held Tuesday, November 24, Dr. M. Allen Starr, of New York, read a paper entitled "Is Epilepsy a Functional Disease and is it Ever Curable?"

Samaritan Hospital Changes.—Dr. W. Wayne Babcock succeeds Dr. E. W. Holmes, who recently resigned, as Surgeon-in-Chief. Dr. Wilmer Krusen, who has resigned the position of instructor in Gynecology at the Jefferson Medical College to accept the professorship of Gynecology at the Temple Medical College, will be the Gynecologist to the hospital. Dr. F. C. Hammond, who also resigned from Jefferson, will be Dr. Krusen's assistant at the College and Chief of Clinic at the hospital.

Suppression of the Begging Nuisance.—Many cities were represented at a conference to discuss the mendicancy evil and the best methods of dealing with it, held last week under the auspices of the Philadelphia Society of Organizing Charity. An idea of what Philadelphia is doing with the begging classes was given by Police Captain John B. Taylor, who said in part that "From 5,000 to 6,000 vagrants are arrested in Philadelphia every year, and 95 per cent. of them are foreigners." The public itself is largely to blame for the tramp evil through its liberality, but the easy method of conveyance offered by the railroads seems to be the chief method of making tramps. Cheap novels are also to blame, and nearly every boy brought into a police station has at least one on him. In the last five years we have arrested 21,640 tramps. If the public gave 5 cents a day to each of these for that period, the sum would be $390,000, which in the hands of this society would work wonders. One of the results of the conference was the appointment of a committee to co-operate with the railroads in securing some means of driving the tramps from the trains.

Members of Religious Sect Vaccinated.—The headquarters of the Church of God, a negro sect, among whose members five deaths from smallpox have recently occurred because their leaders forbid vaccination, was raided November 20, and 423 persons were vaccinated. Twenty policemen accompanied the vaccine physicians and controlled the excited negroes while they were vaccinated. It has been impossible to make headway in vaccination before, as the people would flee whenever a vaccine physician appeared. Another raid will be made on the church in a short time, as it is believed that a hotbed of smallpox has been located.

Disease Increases as Schools Open.—Important statistics were given at a meeting of the committee of the Public Education Society held recently at the De Lancey school, 1420 Pine street, to arrange for the public meeting in favor of medical inspection of schools, to be held there December 3. Reports of the Bureau of Health for the past four years were presented to show the influence of the schools on the incidence of diphtheria and scarlet fever. The average number of cases per school period were: Diphtheria, 3,895; scarlet fever, 3,684. Average number of cases in vacation periods were: Diphtheria, 2,379; scarlet fever, 2,331. This shows an increase in diphtheria of 39 per cent. and in scarlet fever of 37 per cent.

CHICAGO.

For Model Hospital.—A hotel-hospital, to cost $250,000, will be erected by St. Luke's Hospital in connection with that institution's buildings at 1426 Indiana avenue. The purpose is to supply Chicago with a hospital which will invite the wealthy, not only in this city, but in other cities, to become its patients. Suites will be provided, so that servants can attend the sick persons, and the model will be that of a modern hotel. The end sought, however, is one of extensive charity. By the profits from the patronage of the wealthy the hope is to be able to operate the whole of the existing hospital as a free institution. The project in detail was conceived less than a fortnight ago, but through the efforts of Charles W. Brega, Mrs. J. Ogden Armour, Mrs. John Crerar, Mrs. Marshall Field, Jr., Mrs. Frank O. Lowden, Mrs. Stanley Field, Mrs. Henry C. Dibblee, and other active friends of the institution so much has been done in the interval that the architectural plans already have been drawn. Ground has been bought extending from Indiana avenue through to Michigan avenue, and the new edifice will front the latter thoroughfare. In the new building space will be set aside for free beds, and a wing of the structure will be put to charitable uses if endowments can be secured. The children, rich and poor alike, will have the top floor of the new hospital and likewise its roof, which will be laid out as a roof garden. The workers behind the movement have the promise that when $100,000 has been raised contributions to supply the balance will be made by different wealthy men and women. Of the $100,000 the officials of the hospital have received $75,000, of which $45,000 came as a bequest. Society plans to contribute the lacking $25,000 by giving a charity ball at the Auditorium, which will be a *bal poudre*.

Favor Garbage Incineration.—Incineration rather than reduction of garbage is favored by some of the members of the city council finance committee. After a long discussion it was decided to call upon Commissioner Blocki to suggest an ordinance providing for a separation of refuse as follows: Vegetable and animal matter, combustible material, and ashes. Without separation none of the propositions could be undertaken by the competing companies, according to Alderman Raymer. The question regarding a contract for more than one year was set at rest by the quoting of Judge Tuley's decision adverse to a previous garbage contract for five years. Commissioner Blocki said the city could not pay for reduction and must give the work to a contractor. Street Superintendent Solon said the cost would be $1,000 a day for delivering the separated refuse to stations located by any company. If separation is enforced it is considered that the city may enter into a contract for the reduction or incineration of refuse.

To Assist Hospital Warden.—Dr. John B. Colwell was appointed last week by President Foreman of the county board to be assistant warden of the Cook County hospital. Dr. Colwell passed at the head of the list of applicants at the civil service examination held on October 29 to fill this position. Dr. Colwell is thirty years old, a graduate of Illinois Wesleyan University and Rush Medical College.

New Maternity.—There has just been completed as an adjunct to the Mercy Hospital, what is called the Mercy Maternity. It is a detached building and this institution will be under the direction of Dr. Joseph B. De Lee.

Wesley Hospital Receives a Gift.—Rev. R. D. Sheppard has offered $35,000 to this hospital toward paying off its indebtedness, provided the remainder,

$25,000, is raised within two years. The conditions have been accepted by the trustees of the hospital and they report that $17,000 of the necessary amount is already in sight.

Changes in the Faculty of the Northwestern University Medical School.—A meeting of the board of trustees of this institution was held November 17, when Dr. Chas. L. Mix was elected Professor of Physical Diagnosis, to fill the vacancy left by the resignation of Dr. Geo. W. Webster. Dr. Frederick Menge was elected Assistant Professor of Laryngology and Rhinology, and Dr. William W. Mann was elected Assistant Professor of Ophthalmology and Otology.

CANADA.

Changes in Queen's Medical Staff.—At a meeting of Queen's Medical Staff, held on Nov. 19, the resignation of Dr. Herald as Secretary-treasurer of the Faculty was accepted and Dr. W. T. Connel was appointed to the vacancy. At the same meeting Dr. A. R. B. Williamson was appointed Lecturer on Medical Jurisprudence and Toxicology.

Officers of the College of Physicians and Surgeons of the Northwest Territories.—The following officers of the College of Physicians and Surgeons of the Northwest Territories were elected at a meeting, held at Regina on Sept. 15: President, Dr. M. M. Seymour; Vice-President, Dr. A. B. Stewart; Registrar, Dr. J. D. Lafferty, Calgary; the Executive Committee, Drs. Brett and Kennedy.

New Hospital Opened in New Brunswick.—The Town of Moncton has now a fine new modern hospital, recently built at a cost of $20,000. It was formally opened on Nov. 11, by Premier Tweedie. The hospital is one of the finest institutions of its kind in the Maritime Provinces. The operating room is fitted up with all the latest appliances.

The Toronto Medical Faculty Seeks Better Hospital Facilities.—The Medical Faculty of the University of Toronto and the Boards of Trustees of the principal hospitals are at present negotiating with a view to arranging for accommodation and regulations to secure better hospital facilities for medical education. A need along those lines has been felt for some years and the union of the two medical faculties has paved the way for concerted action by the University and the teaching branch of the medical profession. A committee was appointed consisting of the Vice-Chancellor, Chief Justice Moss, President Loudon, Mr. Irving Cameron, Dr. Primrose, Dean Reeve, Dr. Bingham, Dr. McPhedran and Dr. J. F. W. Ross (Chairman). They drew up a statement embodying the changes and improvements desired and presented it to the Board of the General and St. Michael's hospitals. At the meeting with the Board of the General Hospital, interest in the proceedings was increased by the presence of Mr. Rose Bradford, an eminent physician of University College, London, England, who addressed the Board upon hospital work in London. The proposals dealing first with the subject of house staffs were briefly as follows: That the house staff be large enough to carry on the work efficiently, that one member of each staff be detailed to do clinical laboratory work exclusively, that the staff be divided into seniors and juniors and the seniors retire every six months; that the duties of the house staffs be defined by new rules, that no fee be paid any member of the house staffs by physicians or patients, that each hospital Board should appoint an official anesthetist. Then with a view to increasing the material for clinics, it was urged that all patients in public wards be placed in charge of the clinical staff. The material at present available, the committee stated, for bedside clinics, was deplorably limited. It was proposed that a committee be appointed by each staff to supervise hospital admissions. Closely related to the question of clinical material is the out-patient department. The report stated that a committee of the faculty recently visited New York, Boston, Philadelphia, Chicago, Montreal and Baltimore and reported fully on the value of well-equipped out-patient departments. The out-patient departments connected with the Toronto General and St. Michael's hospitals lack proper organization and must be considered as valueless in their present state. In the General Hospital the rooms are too small, the facilities for handling patients are too meager and the heating in winter is so poor that the health of the patients, the students and the staff is endangered thereby. Better facilities for the study of pathology were asked by the taking of pains to increase the number of autopsies and the keeping of proper records. In the Children's Hospital it is said nearly all the regulations asked for have been in force for considerable time.

Obituary.—Dr. Charles Marshall, Governor of the College of Physicians and Surgeons of the Province of Quebec, which office he has held for two years, died in New York on Nov. 13, of apoplexy. He was a resident of Huntingdon, Quebec, and held degrees from McGill and Edinburgh Universities.

Dr. J. A. E. Steeves of St. John, N. B., died at Phoenix, Arizona, on Saturday Nov. 14, the cause of death being heart trouble. Deceased was forty-two years of age and was considered a leading authority on nervous diseases in the Province of New Brunswick. For many years he acted as assistant to his father, the late Dr. J. T. Steeves, who was Superintendent of the Provincial Lunatic Asylum. He was a graduate of the University of New Brunswick and of Bellevue College, New York.

GENERAL.

Chair of Medical History for University of Maryland.—The University of Maryland has established a chair of the history of medicine, the first of its kind in this country. The occupant is Dr. Eugene F. Cordell of Baltimore. He has written for the *Johns Hopkins Hospital Bulletin* a very interesting essay on the "Doctors and Medicines of Horace."

Typhoid at Williams.—The danger of a typhoid fever epidemic at Williams College is believed to have passed. President Henry Hopkins said last Monday: "I do not anticipate further cases of typhoid among the students. Dr. George Soper, of New York, who had charge at Ithaca during the typhoid epidemic at Cornell, is in charge of the cases here. Everything that could be done to prevent contagion is being done, and it is felt that the situation is well in hand."

Cocaine Habit in Washington.—In his annual report to the District Commissioners Major Sylvester, superintendent of the Washington police force, says that the cocaine habit is greatly on the increase among the lower classes of the capital city and that vigorous measures should be taken at once to check the evil. He says: "It (cocaine) is bound to become a destructive agency unless something is done to prevent its sale by druggists. Two years ago the drug was hardly known, but the habit has grown, and the wreck of lives which accompanies the use of this deadly drug and its sister drugs, morphine, chloral and other pharmaceutical preparations and even patent medicines, is becoming apparent." He also calls attention to the fact that the police are

powerless to raid the opium joints save on the charge of disorderly conduct, and that the fine for this misdemeanor is inadequate to check the evil.

Surgeons' Needles Not Free of Duty.—That "stitching together portions of the human anatomy is not commercially known as hand sewing" is the pronunciamento made by the Board of United States General Appraisers, in overruling a protest against the assessment of surgical needles at 25 per cent. as "needles not specially provided for." A. J. Woodruff & Co. and F. A. Koch & Co., the importers, claimed free entry for them under the clause in the tariff law providing for "needles, hand sewing and darning."

Some Facts about the "N-rays."—In the current number of *Harper's Weekly*, Louis Bell, Ph.D., writes in a very interesting and scientific way concerning the newly-discovered and so-called "N-rays." He says in part: "Therefore the very recent discovery by M. Bloudlot of a new variety of light, which behaves as light ought and yet displays some rather sensational properties, is no small comfort to the puzzled investigator. M. Bloudlot started in to investigate the X-rays, using as an indicator a tiny, faint, electric spark from a little induction coil. The spark flashed more brightly when the X-rays fell upon it, and by its aid he was enabled to measure their velocity and thus to clear up much of the mystery which had surrounded them. Presently he found that with the X-rays appeared a new kind of radiation which obeyed all the ordinary laws of light, although the visible light had already been filtered out of the beam by an opaque screen. The new rays penetrated freely aluminum foil, black paper, wood, and other apparently opaque substances, but were regularly reflected, refracted, and polarized. They were so powerfully refracted by a quartz lens or prism as to appear, at first sight, denizens of the extreme ultra-violet, perhaps only a half-millionth of an inch long. The new radiations are grouped by their discoverer under the tentative name of N-rays. In their properties they are unmistakably light, but of as yet unknown wave-length, and possessing properties which verge upon some of those ordinarily ascribed to radio-activity. Their enormous refrangibility and their powerful action upon electric discharges would naturally suggest a very short wave-length, but their free radiation from comparatively low temperature sources points in exactly the opposite direction. The mere matter of high refrangibility does not decide the question, for substances refract because they slow down the light waves, and disperse the various colors because they slow down and absorb one wave-length more than another. Great local absorption and great dispersion go hand in hand, and they are frequently associated with extraordinary transparency for some particular colors, as if all the opacity of the stuff were concentrated against a single enemy. Thus it appears that while a substance which is fairly transparent to light in general always disperses that light rainbow-wise, with the colors in the order red, orange, yellow, green, blue, indigo, violet, a prism of strongly colored material may mix up the rainbow order in the most shocking fashion. The great refrangibility of the N-rays does not, therefore, prove that they are of short wave-lengths, since quartz has powerful local absorption enough at, unhappily, each end of the spectrum, extreme ultra-violet and extreme infra-red, to account for the most erratic freaks of refraction. Really one sort of refraction is as orderly as the other, in the general consideration of the subject, for, to generalize radiation, there is probably nothing wholly opaque or wholly transparent. We do not know the nature of the complete relation of any one substance to all kinds of light, but the discovery of the N-rays is likely to stretch far the bounds of knowledge."

New Stamford Hospital Gift.—Commodore James D. Smith, president of the Stamford Hospital, announced Nov. 18, at the commencement exercises of the hospital training school for nurses that Robert M. Bruce of Greenwich, who has recently made several donations to that town, had given $10,000 to the Stamford Hospital. This is the first public announcement of the gift. It was learned to-day that it was made over a year ago and that Mr. Bruce requested that no public announcement be made. Mr. Bruce has recently donated $100,000 for a new town hall in Greenwich and has also founded an isolation hospital there.

Quarantine against San Antonio Raised.—Gov. Lanham issued a proclamation Nov. 18, raising the State quarantine against San Antonio, which has been in effect for several weeks because of the appearance of a few cases of yellow fever in that city. Th temperature was down to thirty degrees there Nov. 17, which, it is thought, makes it impossible for new cases to propagate.

Marmorek's Serum in Disfavor.—According to the *Sun*, a majority of the physicians of Paris are skeptical concerning the merits of Dr. Marmorek's tuberculosis serum. Some of the physicians who watched certain experiments say that they were entirely unsuccessful. Reports from Breslau also seems to confirm this unfavorable judgment.

Hospital Reforms in Paris.—The City of Paris is about to spend 45,000,000f. on the work of reconstituting its hospitals. For the past six months a commission has been sitting to investigate the needs of each of the existing hospitals of the capital, and their report shows that but for the enormous strain placed upon their accommodation by tuberculosis patients the number of beds now existing would be sufficient. It has therefore been decided to set apart the sum of 7,500,000f. for the construction of a special hospital for this disease, and to forbid the reception of consumptive patients in the general hospitals for the future. The largest proportion of the proposed outlay will be spent on the Pitié, which, dating from the year 1612, is badly in need of rebuilding. A temporary building will be placed near the huge Salpétrière for the accommodation of the 800 beds of the Pitié during the work of construction, and when finished this hospital will be one of the most remarkable group of such buildings in the world. Every modern invention for the alleviation or cure of disease will be installed with the greatest perfection attainable, and it will even be provided with its own model school of nursing. Two millions will be devoted to the Salpétrière, which is almost a town in itself, and in the front rank of improvements at this and other Paris hospitals is placed the installation of proper laundries. The choice of a site for the hospital for contagious diseases is proving troublesome to the authorities, as the suburbs almost unanimously refuse to have such an institution in their midst.

The Senn Prize Essay for 1904.—The Committee on the Senn Medal begs leave to call attention to the following conditions governing the competition for this medal for 1904: A gold medal of suitable design is to be conferred on the member of the American Medical Association who shall present the best essay on some surgical subject. The award will be made under the following conditions: (*a*) The name

of the author of each competing essay must be enclosed in a sealed envelope bearing a suitable motto or device, the essay itself bearing the same motto or device. The title of the successful essay and the motto or device is to be read at the session at which the award is made, and the corresponding envelope is to be then and there opened and the name of the successful author announced. (*b*) All successful essays become the property of the Association. (*c*) The medal shall be conferred and honorable mention made of the two other essays considered worthy of this distinction, at a general meeting of the Association. (*d*) The competition is to be confined to those who, at the time of entering the competition, as well as at the time of conferring the medal, shall be members of the American Medical Association. (*e*) The competition for the medal will be closed on, and no essays received after, March 1, 1904. Communications may be addressed to any member of the committee, which consists of the following: Dr. James H. Dunn, Chairman, Minneapolis; Dr. M. L. Harris, 100 State street, Chicago; Dr. Floyd McRae, Atlanta, Ga.

Drug Adulteration.—The *Druggist's Circular* of this city in their October issue comment editorially on this subject with such good sense that we desire to give their argument wider publicity. They write: "Forewarned is said to be forearmed. We trust this will prove to be the case with American pharmacists in relation to pernicious and absurd legislation by future legislatures in regard to the placing of responsibility for the adulteration of drugs. The experience of New York with its Bostwick-Dowling Bill should not soon be forgotten. There is every indication already manifest of the determination of the foes of pharmacy to renew the battle in the near future, not only in the State of New York but in other States as well, for the passage of laws that will place impossible tasks and unjust responsibility upon the shoulders of pharmacists. Now is the time to prepare means for the defeat of such efforts and to study the situation in order to have an intelligent comprehension of the charges to be met and the sophistry to be refuted in order to win public sympathy."

"The two weapons depended upon to frighten the public, in order to get them to support such dangerous legislation, are the claims that pharmacists everywhere and in great numbers substitute harmful and cheap for harmless but dear remedies and adulterate, in order to cheapen, the official remedies. To the pharmacist the charge seems too absurd to attempt a refutation but to the public, through knowing nothing definite about the facts, it appears to be reasonable and possibly true. For a long time sensational reports of adulterations of drugs have been published, year by year, by boards of health. The cumulative effects of these reports is beginning to seriously influence the minds of the people so that it is getting to be an easy matter to gain their approval for any restrictive measure that may be proposed. They do not, nor would it be sensible to expect them to, distinguish between adulterations and adulterations. There really should be no need to make such a distinction, but the flexible qualities that have come to be attached to the meanings of that word have rendered it imperative that we know just what a writer means when he uses it, or we will be as badly befogged as he sometimes wishes us to be. By the definition at present attached to it in the reports of some boards of health, the manufacturer has yet to be born who could supply the market with unadulterated goods.

"This may seem to be an exaggerated statement, but it is nothing of the kind. Manufacturers of jellies and fruit juices have been haled before courts of justice and condemned for allowing their products to contain traces of salicylic acid, and now it turns out that the finding of such traces was evidence of the absolute purity of the goods. There is scarcely a fruit that grows which does not, according to the latest discoveries of research science, contain salicylic acid. The laws of several States have made the United States Pharmacopœia the standard of quality for drugs. In such States the chemist of the board of health is bound by this law and his findings could convict every pharmacist in his State for adulterating caffeine citrate. Not a sample can be found in the world that is not adulterated according to this definition of the word adulterate. There has never yet been made a single sample that agrees with the law and probably never will. With three parts of water none of them form 'a clear syrupy solution' which they should do in order to be legally unadulterated. With carbolic acid the Pharmacopœia makes the coagulating of albumin show the absence of creosote, when in fact it would show its presence. In so common an article as lard, the Pharmacopœia declares that it should be insoluble in water, when in fact all lard is slightly soluble in water. Who can find a sample of lard that is unadulterated according to the law? The Pharmacopœia fixes the specific gravity of white wax at 0.965 to 0.975. The actual wax of the world's market is 0.960 to 0.964, according to the reports of experts. All white wax is, if legally considered, adulterated.

"Turning our attention now to the manufacturers we find that they will not or cannot supply the trade with such goods as the Pharmacopœia calls for. When the retail druggist orders alum, even for prescription use, he receives from firms with the very highest character, not the potassium alum of the Pharmacopœia, but ammonium alum that is a wholly different chemical substance. In such a case who is responsible when absolute substitution occurs? Is the Pharmacopœia to blame or are the manufacturers to blame? If milk sugar darkens with the sulphuric acid test because traces of the string upon which it was crystallized adheres, should the manufacturer be accused of adulterating? The preparation is adulterated if we accept the present claims of the law, of boards of health and of sensational reports that now so successfully befog the public. If manufacturers of glycerin, who are no way connected directly with pharmacy, ignore the Pharmacopœia and supply an article that will not withstand our test for fatty acids (as found by La Wall and Pursel), are the pharmacists to blame, is the Pharmacopœia to blame, or are the soap and candle makers to blame? The retailer is, in this case, compelled to sell and use adulterated goods or close his store.

"If the mountain will not go to Mohammed, would it not be well for Mohammed to go to the mountain. The pharmacopœial standard can be lowered. Among many other articles that occur to us now as being exceedingly difficult to obtain in the market, of full pharmacopœial quality, are asafetida, iodine, effervescent citrate of magnesium and nitric acid. In the case of the effervescent salt mentioned, almost all that can be bought is reported to be sulphate and not citrate of magnesium. Who is to blame for the substitution?

"Then there are the analysts themselves. Again and again it has been shown that samples of pharmacopœial drugs when examined by different analysts differed wholly in their qualities in accordance with who happened to be the examiner. His careless work or his ignorance of how to do such work has been a frequent source of trouble. Adulterations of this imaginary kind figure as prominently before the public as deceiving scarecrows as does the work of the most erudite and painstaking who find no such adulterations. In country groceries there are paregorics, essences of ginger, and various tinctures that are fearfully and wonderfully made.

Few of them ever saw a pharmaceutical laboratory and most of them were made by men who know nothing of Pharmacopœias or Dispensatories. Analyses of such concoctions as these swell the flood of damning evidence ued to show the public that restrictions are required to keep pharmacists straight.

"No report on adulterations is worth the paper it is written upon unless it shows that the analytical work was done by a skilful man, that it was checked by a second man who knew nothing of the work of the first, that it distinguished between deliberate sophistication (which is the only real adulteration) and mere impurities incident to manufacture, that the samples were called for from a drug store on prescription and not on five cent orders, that the buyer was a reliable and truthful person, and that every precaution possible was taken to see that there was no mixing of the sample of one house with the sample of another.

"If five cents worth of ether is asked for by the collector the chances are that the druggist presumes he wants it for a toothache application and he gives the 1880 article because he can afford to supply more for the money and thus please his patron. If saffron is asked for, carthamus is almost certain to be supplied instead of crocus. An order by prescription would, at the same store, be certain to get the official articles. To call for potash, soda, sulphur, salts of various metals, and many articles kept for commercial use in one quality and for prescription use in another quality, will bring the commercial grade or the medicinal grade to the purchaser in accordance with the method he pursues in making his purchases.

"Is it fair or just to charge to adulteration goods short of pharmacopœial requirements when such goods were not sold as of standard quality? Yet this is just what sensation loving analysts are frequently doing much to the injury of the good name of pharmacists as a class."

Obituary.—Dr. Allen Hazen of New York, died last Tuesday, after an operation for appendicitis. Dr. Hazen was graduated from the College of Physicians and Surgeons of New York in 1895, and was a member of the Society of Alumni of the City Hospital, where he served as resident physician for two years. He had been on the Board of Medical Examiners of the Mutual Life Insurance Company of New York for about five years.

Dr. Samuel Talmage died at his home, 22 Schermerhorn street, Brooklyn, on Friday. He was born in 1831 at Monte Verde, N. J., and was a son of Major Thomas Talmage of that place. He graduated from the University of New York and began practicing as a physician in Brooklyn thirty-eight years ago. Dr. Talmage was house physician of the Gates Avenue Homeopathic Dispensary and consulting physician of the Brooklyn Nursery. He was a member of the Kings County Medical Society. His wife, a son, and a daughter survive him.

Dr. Herbert A. Starkey, owner of the Sloatsburg Ferry, died suddenly yesterday at Kingston, N. Y., aged thirty-five years. He was a son of Dr. David Starkey of Philadelphia, and formerly surgeon for the Pullman Company, at Pullman, Ill.

Dr. Charles A. Traester, a physician in Williamsburg, died last week in St. Catherine's Hospital of injuries he received on Wednesday, when he fell off a Fourteenth street car. Dr. Traester was born in Hesse-Darmstadt, Germany, sixty-four years ago, and came to America when he was twelve years old. He studied medicine and chemistry and began his business career in the Fourteenth Ward section of Williamsburg.

CORRESPONDENCE.

MEXICO CITY AND YELLOW FEVER.

To the Editor of the MEDICAL NEWS:

DEAR SIR: Some time since, I noticed in your general news items, the statement that "yellow fever is prevalent in the City of Mexico." As this is incorrect I knew you would be glad to have it corrected. I believe I am absolutely within the bounds of truth when I say that a case of yellow fever has never originated in the City of Mexico, in the Federal District or on the whole plateau of Mexico, where the altitude ranges from 5,000 to 8,000 feet.

During my residence in this country, over 4½ years, I have known of only two cases in the city; in both cases the disease originated in yellow fever districts, one coming from Vera Cruz and the other from Muna Laredo.

It would be impossible, I believe, for the disease to flourish here, as the conditions are not favorable for its propagation. I shall be glad if you will correct the statement, as it might have an unfavorable effect on the numerous visitors to Mexico. The City of Mexico, since the drainage of the city has been perfected, ranks well in sanitation and general health conditions.

Very truly yours,

A. H. DEEKENS.

SOCIETY PROCEEDINGS.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, held October 6, 1903.

The President, Pearce Bailey, M.D., in the Chair.

Partial Paralysis of the Platysma Myoides Following Typhoid.—Dr. Edwin G. Zabriskie presented a girl of seventeen years, a cigarette maker by trade. Following an attack of typhoid fever, five years ago, a sinus formed in connection with the lower jaw on the left side. On coming under observation recently, it was found that there was paralysis of the left platysma myoides, and that this muscle failed to respond to electrical stimulation.

Extirpation of Gasserian Ganglion for Neuralgia.—Dr. William Hirsch presented a woman who had been operated upon one year ago for the relief of trigeminal neuralgia by the removal of the Gasserian ganglion. Microscopical examination showed that the ganglion had been completely extirpated. The neuralgia had been completely relieved. There was no analgesia anywhere. Remak claimed that one result of paralysis of the trigeminal nerve was a pushing of the lower jaw over toward the affected side, associated with partial subluxation. This patient showed only a slight deviation. In this woman the perception of a sweet taste was somewhat uncertain, that for sour was lost, and the taste for bitter was perverted. The electrical reaction of the muscles on the affected side was perfectly normal, but the effect of the current as regards taste had not been noted.

Congenital Multiple Angiomata.—Dr. M. Abrahamson presented a boy of fifteen years, born in Russia after a very prolonged labor. He was cyanotic at birth, and was resuscitated with difficulty. When two months old the mother first noticed a small mass behind the left ear; another appeared on the left side of the neck when two years old after a fall. Since then new ones had appeared. Epistaxis had been frequent, but there had been no hemorrhages from the other mucous membranes. There were a number of these swellings, or angiomata, notably in the tongue and lip. There was an angioma in the retina of the right eye. There were

apparently no angiomata in the liver and spleen. This boy showed both of Virchow's types—cavernous and fissural. The course of the disease in this case was not in accordance with any of the theories that had been advanced to explain such cases.

Dr. William M. Leszynsky presented a boy of eleven years, who had been born at full term by forceps without suspended animation. He had never had convulsions. He seemed perfectly well up to nine months ago, when he began to bend forward when walking. When first seen, on March 9, 1903, his general health was found to be good. The knee-jerks were unobtainable, and the limbs became rigid in various positions. No evidence of organic nervous disease was discovered, and a few days later the knee-jerks were elicited. He was discharged after sixteen days, walking perfectly well, but he was readmitted to hospital in July in a condition similar to the original one. The speaker believed at first that the attitude was imitated, and that subsequently it became a habit. Although the boy walked in a doubled-up position with the head almost touching the floor, he could hang upon a horizontal bar without special difficulty. When in bed, he lay like other children. There were no objective sensory disturbances of hysteria. For want of a better name he would call it a case of hysteria. This habit had persisted, and remained even when he was not observed. There was, of course, exaggeration and a certain element of simulation.

The Movements of Superior Intercostal Muscles in Hemiplegia, and the New Hemiplegic Symptom.—Dr. L. Pierce Clark presented this paper. He said that Gowers expressed the generally accepted opinion regarding the respiratory movements in hemiplegics when he said that in ordinary respiration the two sides of the thorax moved equally, but that in extraordinary respiration there was often less expansion on the paralyzed side. In 1895 Hughlings Jackson stated that in hemiplegics the superior intercostal movements were greater on the paralyzed side during ordinary or automatic respiration, whereas in forced respiration the movement was greater on the sound side. The speaker said that he had examined with regard to this point 161 cases of hemiplegia, with the result that this sign was found to be uniformly present. In destructive lesions of the internal capsule causing hemiplegia the cortical inhibitory control over the medullary respiratory center of the paralyzed side was largely destroyed, and, accordingly, the inhibited medullary center acts excessively in automatic respiration. The experiments of W. G. Spencer demonstrated the presence of an inhibitory center situated just outside of the olfactory tract, anterior to its junction with the temporosphenoidal lobe, and of an acceleration center apparently located in the posterior portion of the sensory-motor area of the cortex. The location of the inhibitory center would lead one to expect it to be damaged in vascular lesions, especially of the middle cerebral, affecting the integrity of the capsular fibers. The fact that the superior intercostals of the paralyzed side were innervated through cerebral fibers ending on spinal centers in the anterior horns of the cord, and the more or less marked damage of the same would account for the general motor loss of volitional acts on the hemiplegic side. The respiratory center could be demonstrated in all muscles bilaterally susceptible of both automatic and volitional movements.

The Advisability of Supplementing the Words Degeneration and Degenerate by Deviation and Deviate.—Dr. G. L. Walton, of Boston, presented a paper with this title. The definitions given by a number of well-known writers were cited to show that a degenerate was one exhibiting certain deviations from the normal type. The words "deviation" and "deviate," therefore, seemed to him to be more accurate, and less objectionable because independent of all theories. Referring to the hereditary aspects of the question, attention was called to the tendency of similar parents to produce inferior degenerates and of dissimilar parents to produce beings superior to their immediate ancestors. The term "degenerate" he would limit, so far as possible, to the lowest grades of constitutional defect, and avoid altogether the anomalous term "superior degenerate."

Dr. Hirsch said that about ten years ago he had himself pointed out the apparent misuse of the term degenerate. The definition which he had given at the time of degeneration was, "a mild development of the psychical organ." The term, superior degenerate, was not originally applied in the way in which it was referred to in the paper, *i.e.*, a degeneration of a lesser degree, but rather that the higher faculties of certain individuals were degenerated. The word "deviation" unfortunately was not one which could be used internationally, and this, in itself, constituted a serious objection to its adoption, although there could be no doubt about the term being superior to degeneration.

Dr. C. L. Dana said that he was very much in sympathy with the purpose of this paper, and that his own views regarding degeneration did not differ very much from those of the author. He understood that Dr. Walton wished to continue the use of the term degeneration in connection with somatic changes. About eight years ago, in an address before the Academy of Medicine, the speaker said, he had defined a degenerate as "one who differed from the average standard of the family from which he sprung," and suggested that there were two classes of degenerates to whom the term could be applied without any implied opprobrium. One of these was the class spoken of in the paper as the "superior degenerate." He thought the term "variation" could be very properly applied. He was of the opinion that in the superior degenerates and in the inferior degenerates, and in the imbeciles, and even in the higher types that there was a degenerative tendency in the germoplasm, and that the family was very apt to die out.

Dr. B. Sachs thought that if degeneration was too severe a term, deviation was too mild a term, for it could not be looked upon as representing anything morbid. After all, the only objection to the term, degeneration, was in its application to the so-called superior degenerate, and the vast majority of the persons to whom the term degenerate had been applied showed a distinctly downward tendency.

Dr. Joseph Collins said that the substitution of terms suggested by the author of the paper did not seem to him a wise move, but an effort to incorporate those terms into medical literature to express certain conditions often included under the terms degeneration and degenerate should be encouraged. Because some of the incident newspapers saw fit to use the term degeneracy merely as a synonym for moral profligacy, and particularly sexual perversion, was no reason for the scientific world to feel called upon to change this term. Even in scientific circles it seemed to him that the term degenerate was used altogether too frequently. He believed that the usual tendency in both superior and inferior degenerates was downward from the normal moral standard, and that this notion was rightly reflected in the definitions quoted.

Dr. Edward D. Fisher said that his understanding of the term degenerate carried with it the idea of a departure from the moral standard, although there were possibly other forms of degeneracy in which the moral aspect did not enter. The term deviation seemed to him entirely inadequate.

Dr. Walton, in closing, emphasized the fact that it was intended, not to displace degeneration, but to furnish a synonym which might prove useful. He saw no harm in the milder word sometimes being used to include the more severe, just as delinquent was meant to include criminal. He agreed with Dr. Sachs that deviate was too mild a word to supplant degenerate, and this was not his intention. If no objection were made to substituting deviate for superior degenerate, the ground would be practically covered. He agreed with Dr. Collins in deploring the elaboration in literature of the individual moral deviations, but this tendency could not be prevented. If we could limit our use of these terms to scientific circles, the word degenerate, as understood in those circles, would satisfy all requirements, but the subject had now become of general interest.

A Case of Cerebral Infantile Diplegia or So-called Muscular Pseudohypertrophy.—Dr. Nathan reported this case. The patient was a large, well-developed boy of ten years. On standing, there was decided lordosis. When lying down, he was apparently unable to raise himself. There was good power in the hands, and the thighs could be flexed without difficulty. He walked with the typical spastic gait. The knee reflexes and the electrical reactions to both currents were exaggerated. The mental development was nil, largely owing to neglect. The case differed from those of pseudohypertrophy in infantile paralysis previously reported in several respects. This was the only case on record, so far as known, in which pseudohypertrophy occurred in a case of so-called spastic spinal paralysis; all previously reported cases were hemiplegic. There were no athetoid movements in this case. The measurements showed that besides the pseudohypertrophy there was enlargement of the left thigh and arm.

Dr. L. P. Clark said that the condition had not been first described by him, as stated in the paper, but by Bernhard, about twenty years ago. Gowers had reported a number of cases about one year later. The case reported here was evidently quite rare. Athetoid movements were noted in only about one-half of the cases, and neither this nor spasticity was sufficient to account for the cases, because this was also frequently absent.

Dr. C. L. Dana said that he did not think the diagnosis could be made solely upon the large calves, because this was frequently present in diplegics.

Dr. B. Sachs said that he quite agreed with the last speaker regarding the enlargement of the calves, and suggested that the only positive way of making the diagnosis would be by excising a piece of muscle and demonstrating the characteristic changes.

Dr. J. Collins said that if the contention were that pseudohypertrophic paralysis with spasticity had not been recognized, he would say that during the summer there had been in his clinic a case of typical pseudohypertrophic paralysis in which spasticity was apparently as great as in the case just reported. Although there was profound spasticity, particularly of the adductors, there was no exaggeration of the knee-jerk, and no Babinski—in other words, there were no indications of disease of the pyramidal tracts. The case had been looked upon as a peculiar form of obesity before coming to the clinic.

Dr. Nathan said that it had not occurred to him that there was any doubt about the diagnosis. The history was typical of cerebral paralysis. The child was born asphyxiated, and had convulsions repeatedly up to the seventh year. It began to walk when three years old, and had always walked with difficulty. The only symptom of pseudohypertrophic paralysis was the enlargement of the calves. It was interesting to note that the left side was larger than the right.

NORTH BRANCH PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, held October 8, 1903.

The Chairman, H. Brooker Mills, M.D., in the Chair.

SYMPOSIUM ON SYPHILIS.

Recognition and Treatment of Acquired Syphilis.—This was the title of the paper read by Dr. S. Leon Gans, in which he called attention to the importance of always bearing in mind the essential pathological lesion—the round-cell infiltration. The chancre, he stated, was rather a building up than a breaking down process, and pus is not always present. They usually appear only singly and careful attention should be given to the mixed sore of Rollet, in order to avoid further skin complications. The condition of the epitrochlear and postcervical ganglia should be carefully noted, as should also the history of susceptibility to rheumatism, headache, follicular tonsillitis, cephalalgia, and all mouth and throat conditions; and all the superficial lymph glands should be carefully examined. He dealt at length with the various stages of the chancre and laid stress upon the importance of paying particular attention to extragenital lesions. The chancre is particularly difficult of location in women, being usually of the erosine type. From seven to ten days after the appearance of the initial lesions there is an enlargement of the ganglia accompanied by impaired hyperplasia of the lymph vessels, beginning near the sore and extending over the entire body; the secondary symptoms usually appearing about six weeks after the chancre, although they may be ninety days. He remarked that the early secondary symptoms are symmetrical all over the body, involving the superficial layers; the late secondary symptoms, while often symmetrical, are prone to localization and deeper; and the tertiary lesions are less widely distributed, invading more extensively the particular region attacked, usually unsymmetrical and more prolonged and indolent. The cases which are particularly apt to be overlooked are those in which the syphilides are manifested by only one or two erythematous spots, the subsequent eruptions being delayed for months, or probably never appearing.

Treatment.—Excision was not recommended. The sore should be kept clean, quiet and dry, and iodoform should be employed twice daily, after immersion of the organ in hot water for ten minutes. For the treatment of the secondary lesions, the stomach and skin were thought to be the preferable routes of administration, although in selected cases hypodermics and vapors might be used, believing that the proper course was to wait for the full development of the disease as signified by the early syphilides, in the interim correcting any gastro-intestinal or nervous conditions. Tobacco, whisky and champagne must be eliminated. Mercury is, of course, the important drug, and the method of administration would depend upon the stage of the disease and the individual patient, and in the later stages iodide of potassium is a valuable adjunct. The patient should be warned of his condition and the necessity for strictly following directions, and taking plenty of sleep and careful attention to hygiene. The mercurial treatment should be persisted in for eighteen months to two years, followed by six months' iodide treatment, then interval of six months without specific treatment, and then six months of mixed treatment.

Hereditary Syphilis.—This paper was read by Dr. Howard S. Kinne, in which he stated that the source of infection was either through infected semen from the father or an infected ovum of the mother, and remarked that the manifestations are usually worse in the first child, thus showing that the tendency to transmission is less as the time goes on. It differs from

acquired syphilis in that there is no chancre nor can the symptoms be classed under distinct periods. The chief differential point is the alteration which inherited syphilis impresses upon the nutrition and development, as is evidenced by the fatal marasmus, or acute inflammation of the epiphyses or chronic osteoperiostitis, producing deformity of the bones. The family history should be carefully considered, although the symptoms are varied, and usually appear about six weeks after birth, consisting of coryza, erythematous, or, in some instances, papular rash, soreness of the corners of the mouth, irritation of the laryngeal mucous membrane, and, unless the infection is very light, marked anemia and interference with the digestion and wasting of the body. Antisyphilitic treatment of the pregnant mother will reduce very materially the chances of the offspring being infected. The child should be carefully nourished, preferably breast-fed and proper hygienic measures should be observed. Mercury and iodides should not be given unless symptoms are indicated. He reported the case of a child seven years old, in which the mother was infected about three or four years previous to the birth of the child, during which time she had three miscarriages; was treated for eighteen months, and subsequently there were no marked symptoms. The patient was breast-fed, and with the exception of occasional coryza, was perfectly well until six years of age, when swelling appeared over the metacarpal bone of the right hand, and also over the biceps muscle of the right leg. The swelling on the hand was a fluctuating inflammatory mass, and on incision necrosed bone was found, which was curetted and the patient put on a treatment of $^1/_{30}$ gr. bichloride; and 5 grains of potassium iodide t.i.d., the latter being increased 10 grains a week, until he was taking 50 grains t.i.d., which has continued until the present time, the treatment beginning in March, 1903, since which time the symptoms have entirely disappeared and there has been no iodism.

Diagnosis and Treatment of Syphilis of the Central Nervous System.—This paper was read by Dr. Luther C. Peter, in which he considered only those conditions which were due to the direct action of the infection and not the symptoms due to organic changes following long after the disease has disappeared, in which he stated that variability in symptoms, absence of systematic grouping of symptoms, paralysis of cranial nerves, Argyll-Robertson pupils, irregularity of pupillary margin, inequality of pupils, apoplectiform and epileptiform attacks, recurring palsies, usually without loss of consciousness, numbness in extremities, increased reflexes, headache, vertigo and altered mental states are symptoms which point to syphilis of the brain and it coverings. He reported a case of a man, aged forty-three years, who had had a chancre some months previous to coming under observation, and for seven weeks previously had been ailing. A few weeks afterward, he complained of a feeling of "sudden stopping of the heart," as though it had ceased to beat, but did not lose consciousness. He also complained of weight in the right arm and cramping of the fingers when attempting to write. Two months later, when about to get up in the morning, he noticed black specks before his eyes and then lost consciousness; later he suffered from diplopia and paresis of the right side, with increased knee-jerks and marked depression of spirits. The doctor remarked that in syphilis of the cord there is a distinct set of symptoms, characterized by slowly oncoming spastic paraplegia, atrophic at times, contractures of the muscles, involvement of the bladder, slight disturbance of sensation, with a tendency to alternative improvement and relapse, the essential feature being involvement of the entire cord. He reported the case of a man, thirty-nine years of age, first developing several years after the appearance of the chancre, commencing with recurring numbness in the extremities, impairment of the bladder function, diplopia, headache, vertigo, difficulty in speech, at times, spastic palsy of the left leg, partial palsy of the left arm, Argyll-Robertson pupil, impairment of sensation to the touch. He died six years after coming under observation from pneumonia, and post-mortem examination revealed syphilis of the brain and cord and their coverings. The intermittent treatment with potassium iodide and mercury, the latter preferably by inunctions, was recommended, and it was felt that it should be persisted in for several years.

The Recognition and Treatment of Some of the Pharyngeal Lesions of Syphilis.—This was the article of Dr. Lewis S. Somers, Philadelphia, in which he considered (1) the erythema; (2) the mucous patch, and (3) the ulceration. Erythema he believed was frequently mistaken for catarrhal pharyngitis or tonsillitis, especially in private practice. An examination of the erythema, however, will reveal the fact that it presents a deeper brick-red or more of a copper hue, and a marked tendency to the development of small irregular patches of cloudy swelling, which, when they become larger, well-defined and present a whitish or bluish-white color, constitute the mucous patch, the most frequent site of which is on the soft palate, pillars and tonsils, being oval, circular or stratiform in shape. In ulceration, the parts are covered with a thick, mucopurulent, offensive secretion; there is marked tendency to osseous destruction, particularly when the palate is involved. Tuberculosis, lupus, carcinoma and diphtheria may all conflict with this disease, although the former three would usually manifest quite prominent symptoms in other parts of the body, and the latter can easily be recognized by the presence of the specific organism. Three important diagnostic aids are: History of the initial infection; evidences of the disease in other parts of the body, and the response to specific treatment, and, unless one of these is obtained, you cannot be perfectly sure in your diagnosis. He stated that he had obtained the best results in the erythema with protiodide of mercury in ¼ to ⅓ grain doses two to three times daily; the disappearance of the congestion being accelerated in occasional cases by an astringent gargle. The same form of mercury, aided, in some cases, by the application of 20- to 50-per-cent. solution of nitrate of silver, locally, and in others by the local application of a solution of chromic acid, has given the best results. During the late tertiary stage this treatment will sometimes be of no benefit, and may even appear to aggravate the condition, in which case 3- to 5-grain doses of potassium iodide will usually produce marked relief. In the tertiary syphilitic ulceration the destructive process demands checking as quickly as possible, increasing doses of iodide of potash, beginning with 15 to 20 grains t.i.d., in conjunction with protiodide or bichloride of mercury, if necessary, to injection or inunction.

Syphilis of the Eye.—Dr. Wendell Reber read this paper, in which he referred to the impossibility of obtaining a record of just what percentage of syphilitics showed ocular symptoms, owing to the fact that such a history was difficult of elicitation, and in many cases the patient did not realize his condition. He considered the subject under the heads of the primary sore, the secondary or tertiary aspect and hereditary phase. The most usual site for the primary sore is at the margin or just without the margin of the lids, being due to the introduction of some of the poison into the eye. The secondary phase may affect either the cornea, the uveal tract, or the optic nerve and retina, being most fre-

quently in the uveal tract. The work of various authors shows an average of 50 per cent. of all cases of iritis as being specific, which he believed was sufficient ground for suspicioning every case of iritis until trauma, tuberculosis, microbic infection or the rheumatic diathesis has been shown to be causative. Choroiditis is quite as frequently of specific origin as iritis, and is a valuable adjunct to diagnosis. The most frequent tertiary involvements are the intra- and extra-ocular palsies, and these conditions in the absence of diabetes or trauma are usually of specific origin and the forerunners of locomotor ataxia or general paresis. This stage may also be manifested in the optic nerve, lacrimal sac, or iris, the latter being quite rare. Hereditary syphilis is usually manifested by interstitial keratitis, which is characterized by flat nose, bluish gray-white corneas, depressed cheek bones and imperfect teeth, deafness due to inflammation of the auditory canals being a frequent accompaniment.

Dr. F. Savary Pearce felt that the presence of diplopia should always be suggestive of specific disease, especially, when in conjunction with headache, which is usually worse at night, and increased reflexes. The reflexes are usually out of all proportion to the sebasticity, which is due to the fact that the tertiary symptoms encroach upon the nerves and irritate the motor cortex of the brain without destruction. In syphilis of the cord, early involvement of the bladder is an important symptom. In all cases showing suspicious symptoms, where syphilitic history is denied, careful physical examination should be resorted to, and the patient should be impressed with the importance of continuing under treatment for at least three years before he can feel cured.

Dr. Leedom Sharp reported a case of syphilis occurring in a woman, in which he stated that she and her husband were both absolutely ignorant of the fact that he had ever had syphilis. It was manifested first by swelling of the glands, followed later by secondary symptoms. He referred to another case of gumma of the brain, which had been treated by several physicians for stomach trouble, neurasthenia without effect, finally developing periplegia of the left face and left leg, after which she was put on a treatment of bichloride of mercury with good results.

Dr. A. Bernheimer referred to several cases coming under his observation in which there was no history of syphilis in any member of the family, all of which had been very malignant, and suggested the possibility of infection through the tertiary or secondary manifestations of another person. He referred to the case of a girl who had a sore on her lip, which was relieved by zinc ointment, and a few days later there was swelling of the glands and some irritation of the body, which, after the removal of the glands, was relieved by mercury and iodides. He preferred the blue ointment as the method of ministration.

Dr. Carle Lee Felt referred to cases in which three or four children had died from syphilis within a few years, although both parents positively denied the disease, and another child was referred to him suffering from deafness, which was not relieved by iodide inunctions, etc. The case improved on the four chlorides, and the speaker suggested the possibility of this being a case in which the disease had jumped a generation. He also referred to two other cases of deafness from affection of the Eustachian tube, which had been benefited by the use of potassium iodide. Another case in which there was sloughing of the nasopharynx, of a syphilitic appearance, denied syphilis, but after two weeks' treatment with potassium iodide the sloughing disappeared. In conclusion he urged the importance of thorough and long-continued treatment.

Dr. A. Bern Hirsh called attention to the importance of looking after the obscure symptoms of syphilis, and believed that the patient should be thoroughly warned of his condition, and when apparently cured, should be instructed to inform any physician who might in the future treat him for a return of such symptoms, that so many years ago he had had similar symptoms.

Dr. Peter, in closing, felt that as good results could be obtained from small doses of potassium iodide as from the other larger ones. Nervous syphilis, he believed, occurred within six months after the initial lesions, although there are exceptions, one of which had come under his notice in the case of a man suffering from hereditary syphilis, who was entirely free from symptoms from six to forty-five years of age, at which time he had severe meningitis and cerebral ataxia.

Dr. Lewis S. Somers, in closing, called particular attention to the necessity for impressing upon the mind of the patient the exceedingly infectious character of the disease, and referred to a case in which the disease had been contracted by drinking out of the same bucket, or using the same blowing tube at a glass factory. He emphasized the value of tonic treatment in addition to the specific remedies, and laid particular stress upon the importance of large doses in tertiary syphilis of the upper respiratory tract.

Dr. Reber, in closing, believed that diplopia was a very valuable symptom. While he felt that inunctions were important in hospital work he did not favor their employment in private practice.

CHICAGO SURGICAL SOCIETY.

Regular Meeting, held November 2, 1903.

The President, E. W. Andrews, M.D., in the Chair.

Tuberculosis of the Knee.—Dr. Wm. Hessert showed a young man who had been suffering since childhood with a tuberculous knee. Patient had been treated for years by different physicians without avail. He had all the classic symptoms of a typical tuberculous knee. A typical resection was performed. The result was excellent, with shortening of a little more than an inch.

Umbilical Hernia.—Dr. Hessert showed a patient upon whom he had operated for umbilical hernia. The woman had been suffering for nearly thirty years from this hernia. At first the hernia was small, but of late it had assumed enormous proportions and was irreducible. The patient submitted to operation and the author performed a typical Mayo operation. The woman recovered.

Appendicitis with Severe Complications.—The author's third case was one of appendicitis with the usual typical history. After opening the abdomen it was found that the appendix had ruptured, and the stone had escaped into the free peritoneal cavity not far from the appendix. The usual operation was performed. The complications were retrocecal abscess; circumscribed empyema on right side; abscess of right lung which broke into a bronchus, and a second circumscribed empyema on the right side anterior to the first cavity. The patient was treated for these complications.

Dr. A. J. Ochsner said that everyone who operated upon umbilical hernia up to six years ago, before the present method advised by Mayo, knew that there was danger to the patient from edema of the lungs or pneumonia. A large proportion of such cases had a recurrence. With the present Mayo treatment, neither of the conditions named occurred, and the operation was safe and resulted in a permanent cure. He had used the operation in over 30 cases, with excellent results.

Dr. Wm. E. Morgan said that the result in Dr. Hessert's first case had been largely governed by his careful observation and frequent examinations of the patient after primary drainage. The fact that there had been previously an empyema, and an abscess of the lung on the same side, and the further fact that another focus of empyema on the same side was found, showed great diagnostic ability.

Case of Interscapulo-thoracic Amputation for Sarcoma of the Scapula.—Dr. A. E. Halstead exhibited a patient upon whom he performed this operation. Dr. Halstead performed the Paul Berger operation, and mentioned its steps. He said the tumor had been examined microscopically and was found to be a mixed giant- and spindle-cell sarcoma. The patient suffered no shock from the operation, was up on the third day, and left the hospital at the end of ten days. The wound healed by primary intention.

Dr. Arthur Dean Bevan had done three of these operations. The first case in which he performed this operation was carefully gone over by himself and other physicians. The man presented himself with a tumor situated at the upper end of the humerus, and careful examination was made to determine if there was any primary focus anywhere else in the body. No such focus having been found, the conclusion was reached that it was a case of primary sarcoma of the humerus. An amputation was made on the strength of that diagnosis. Histological examination showed that it was a carcinoma. The patient died four or five months after the operation with symptoms of enlargement of the prostate, although he was only forty-five years of age. Examination showed primary carcinoma of the prostate, and that the bone tumor was secondary to it. He narrated the particulars of two other interesting cases, in one of which the tumor was a secondary carcinoma. He said surgeons must be careful not to do what he had done twice, namely, to amputate the entire upper extremity for secondary carcinoma. From his limited experience, many of the cases were secondary carcinomas, having a small primary focus elsewhere. He thought it wise to remove the entire clavicle, to guard against a possible recurrence.

Dr. A. J. Ochsner had done the operation twice, once in 1892, for sarcoma of the shoulder involving the entire joint. The patient remained well after eleven years. The other patient was operated on eight years ago for sarcoma of the shoulder and was also well at this time.

Dr. Halstead, in closing the discussion, said he had had occasion to look up the statistics of the operation at the time he operated on his patient, but did not find them as favorable as many were led to believe. He mentioned the statistics of Schultz, who took all of the cases operated on since 1875, and found an operative mortality of 7.14 per cent.; definitive recovery in 10.71 per cent. He said that his own case presented difficulty in diagnosis. The man had been anesthetized, and an effort made to reduce a supposed dislocation of the shoulder joint. This brought up the question of false aneurism or hematoma, which was excluded. A diagnosis was made by eliciting crepitation, which he said was characteristic of giant-cell sarcoma. Repeated examinations of the urine showed the presence of albumose, a common symptom of this particular form of sarcoma. This did not exclude osteomyelitis, but after introducing a needle into the tumor and nothing but fluid blood being withdrawn, osteomyelitis was excluded and this left nothing but sarcoma to be considered.

The Pathology and Treatment of Recent Fractures of the Patella.—Dr. S. C. Plummer, of Chicago, Ill., read this paper.

After considering the arguments for and against the operative treatment, he proposed the following as a fair statement of the present status of the question of treatment of recent simple transverse fracture of the patella: (1) Operative treatment should never be undertaken except under the best of conditions for maintaining asepsis. (2) Presupposing ideal aseptic conditions, not every case should be subjected to operation, but only those in healthy patients of suitable age, with at least half an inch of separation of the fragments and lateral tears which compromise the "reserve extension-apparatus," or in patients following arduous occupations. (3) The operative treatment fulfils all the indications for treatment in a manner which the non-operative method can only partially achieve, but good functional results follow the non-operative treatment as a rule. (4) Early massage in all cases favors the early and complete restoration of function of the joint, and should be used in all cases. (5) If operative treatment is employed, the open arthrotomy should be used. (6) Absorbable suture material applied to the soft parts is sufficient in nearly every case.

Dr. Daniel N. Eisendrath was glad to hear the conclusions of the essayist that surgeons should not employ the operative treatment for fracture of the patella unless the surroundings were favorable. As to the treatment by non-operative methods, if the pathology of fractures of the patella was borne in mind, and treatment directed accordingly, almost as good results could be obtained with the non-operative treatment as with the operative. The pathology consisted of extensive tears in the aponeurosis as well as of the bone itself, with a large amount of effusion into the joint. If a posterior splint was applied, even though there was not exact coaptation of the fragments, by having massage applied regularly every day, for the purpose of getting rid of the effusion, and also of preventing atrophy of the quadriceps, which delayed extension, good functional capacity could be effected after three or four months. He did not agree with the essayist in advising the beginning of passive motion at the end of the fourth week, and called attention to a case which he exhibited to the Society last winter, in which he sutured the patella, with accurate approximation, but did not begin passive motion until the end of the sixth week. As suture material he thought kangaroo tendon was ideal.

Dr. D. A. K. Steele thought most surgeons had reached the conclusion that in the simpler transverse fractures of the patella, with a minimum amount of violence, the non-operative treatment should be employed. However, in cases of fracture of the patella due to direct violence, in which the soft parts had been materially injured, or where there had been a stellate fracture of the patella, the open method of treatment gave by far the best results. True bony union could be better obtained by the use of sutures.

Dr. Wm. E. Morgan mentioned two cases which showed how surgeons were obliged sometimes to treat one fracture differently from that of another. He reserved operation as a secondary procedure in all fractures of the patella that were not compound. His results from conservative measures in ordinary fractures without operation had been just as good as from suturing. He would postpone suturing until he was convinced that useful union could not be obtained by the ordinary methods of dressings.

Dr. Thomas A. Davis narrated the case of a patient who had sustained three fractures of the patella from indirect violence. There was extensive interposition of the soft tissues between the fragments. The patient in alighting from a train sustained a transverse fracture of the patella. There was separation of one-third of

an inch; also considerable swelling of the joint. After a few days' rest, massage, and hot applications to the joint, an incision was made and the patella wired with silver wire after drilling holes through the fragments. Several months later the patient sustained a fracture of the other patella under precisely similar circumstances. He found a separation of from 2½ to 3 inches of the fragments which he had first wired, also separation of three-quarters of an inch of the recently fractured patella. He operated on the recently fractured patella first, and later on the other, wiring the fragments. The patient was now perfectly well and attended to his business.

Dr. Charles Adams said that suturing of the fractured patella depended upon the surroundings of the surgeon. If he were in a place where he could depend upon asepsis, he would be inclined to suture most of the cases. The cases he has sutured have done very well. The surgeon was bound to restrict operative intervention to those cases where the soft tissues were interposed between the fragments, or where it was impossible to secure good apposition without the aid of some ligature. For suturing he had found that kangaroo tendon answered the purpose admirably.

Dr. Plummer, in closing the discussion, said there was a wide variance of opinion among writers as to the time for beginning passive motion. Scudder had advised beginning passive motion at the end of the fourth week in non-operative cases, and at the end of the second week in operative cases.

Demonstration of McGraw Elastic Ligature.—Dr. A. J. Ochsner said that this ligature was applicable to gastro-enterostomy in which the pylorus was not completely obstructed either by carcinoma or cicatricial constriction. It was likewise applicable for making anastomosis between the intestines. The operation could be done as quickly by it as by the Murphy button. It took about the same length of time. He had used the McGraw elastic ligature in 40 cases, with three deaths.

Dr. D. A. K. Steele asked whether in any of the 40 cases referred to serious symptoms had occurred from acute intestinal obstruction where the elastic ligature was used.

He said the objection to the elastic ligature and to the Murphy button was that these devices worked while surgeons were asleep. Personally, he liked to see the work finished. In any mechanical device that was used, one had to depend upon the element of time; it took hours or days for the elastic ligature to perform its function, which was somewhat uncertain. The same was true of other mechanical contrivances. He agreed with Dr. Ochsner in saying that ultimately surgeons would have to come to the use of the needle and thread.

Dr. E. Wyllys Andrews said he began to use the McGraw elastic ligature soon after the publication of Dr. McGraw's original paper. He had employed it in a dozen cases, with one death. The elastic ligature, he thought, was a little quicker device than the Murphy button and had all its advantages. It had the additional advantage over the Murphy button, in that the surgeon did not have to open a hollow viscus which might infect the peritoneum.

Dr. Arthur Dean Bevan was interested in hearing Dr. Ochsner report forty cases, with practically no operative deaths. This meant a great deal, and yet, when one turned to the work that had already been accomplished with needle and thread, the results were excellent. For instance, he mentioned the admirable report of Munyon, of 76 gastro-enterostomies, with only one death, by means of needle and thread.

Dr. Ochsner, in closing, said that practically he had never done a gastro-enterostomy that was as satisfactory as it was by the use of the McGraw ligature, but he desired it to be understood that he did not consider it the final thing. He felt that if he could do the operation as well as Munyon had done it with needle and thread, he would not use the McGraw elastic ligature. As to the remarks of Dr. Steele, he said the case referred to was one in which Dr. Mayo had made a Mikulicz gastro-enterostomy with the elastic ligature, and later intestinal obstruction occurred from inclusion of more than ½ of the circumference of the intestine in the grasp of the elastic ligature.

BOOK REVIEWS.

A TEXT-BOOK OF THE PRACTICE OF MEDICINE. By JAMES M. ANDERS, M.D., Ph.D., LL.D., Professor of the Practice of Medicine and of Clinical Medicine, Medico-Chirurgical College, Philadelphia. Sixth edition, Thoroughly Revised. W. B. Saunders & Co., New York, Philadelphia and London.

THE fact that 21,000 copies of Dr. Anders' Practice of Medicine have been sold in about four years is conclusive proof that the work is popular among the medical students and physicians of this country. There are many features that commend it. The arrangement is such as brings related subjects closely and logically together, and in such a way that the consultation of various parts is ready and easy. The portions devoted to treatment are especially full and practical, and methods of diagnosis are given with a clarity and attention to detail that make their application, even in the hands of the physician unaccustomed to some of the technical details described, facile of accomplishment.

Among the new subjects treated in the present edition are paratyphoid fever, the fourth disease in the measles-scarlet fever group, trypanosomiasis, orthostatic albuminuria, a better name than the cyclic albuminuria of the older text-books, transcortical aphasia, adiposis dolorosa (Dercum's disease), and amaurotic family idiocy. As the names of these will indicate, no attention is spared in successive editions, and no delay allowed to occur in the exposition of new subjects. The work is evidently from the hand of a practical teacher, who realizes what the difficulties of the medical student are (and what physician does not remain a medical student in our day?), and who is able to present very clearly just the material necessary to solve such difficulties.

A TEXT-BOOK UPON THE PATHOGENIC BACTERIA. By JOSEPH MCFARLAND, M.D., Professor of Pathology and Bacteriology in the Medico-Chirurgical College, Philadelphia; Pathologist to the Philadelphia Hospital and to the Medico-Chirurgical Hospital, Philadelphia. W. B. Saunders & Co., New York, Philadelphia and London.

DR. MCFARLAND'S Text-book upon the Pathogenic Bacteria is in its fourth edition, an index at once of the popularity of the work and of the general interest among physicians in this comparatively new subject. The present edition contains some noteworthy features and especially a full set of bibliographical references to original papers of value in bacteriology, and to the literature of recent advances in this progressive subject. Notwithstanding considerable additions, by the judicious use of smaller type, the number of pages has not been increased.

We have read with special pleasure the chapters on the biology of bacteria and on immunity. Nothing is clearer than that for the proper understanding of bacteriology and its applications to sanitary science, especially as regards the preservation from contamination of

food materials and drinking water, physicians will have to understand the principles of the biology, or life-habits of the bacteria. The chapter on immunity contains the best and clearest brief exposition of Ehrlich's theory and its relations to Metchnikoff's teachings with regard to immunity that we have as yet seen. This subject is of very living interest at the present moment, and owing to the long terms employed and the absolute novelty of some of the ideas exploited, has been a source of no little confusion to ordinary practitioners. Dr. McFarland's book in its constant progress, with repeated revision, seems destined to become one of the classical text-books on the subject of bacteriology.

A TEXT-BOOK OF PATHOLOGY. By ALFRED STENGEL, M.D., Professor of Clinical Medicine in the University of Pennsylvania. W. B. Saunders & Co., New York, Philadelphia and London.

DR. STENGEL'S Text-book of Pathology, in its fourth edition, has been not only revised but considerably enlarged. The best proof of how great are the advances in modern pathology is to be found in a comparison of previous editions of this book with the present, in which, necessarily, a considerable portion of the work has had to be rewritten. There is a new chapter on the technic of pathological methods that will add greatly to the value of the book for medical students. The subject of immunity occupies a very important chapter, and is treated very fully and clearly, as becomes its present importance in medical literature.

The whole book bears evidence of being the work of a teacher of medicine, closely in relation with students and their actual difficulties. It has not been written from the distant standpoint of the lecturer, giving his information in his own way and without that careful attention to students' ways of understanding, which are often quite different from the viewpoint of the interested specialist. It is this practical teaching note in the book that has given it its popularity in the past, and will continue to prove its best-selling quality in the future.

CLEAN MILK. By S. D. BELCHER, M.D., Research Worker in the Rockefeller Institute for Medical Research, Attached to the Research Laboratory of the Department of Health of the City of New York. With an Introduction by W. H. PARK, M.D., Professor of Bacteriology and Hygiene in the University and Bellevue Hospital Medical College and Director of the Research Laboratory of the Department of Health. The Hardy Publishing Co., New York.

IN his introduction, Dr. Park shows that the insistence on a proper nutritive value and the prohibition of the use of preservatives are not sufficient to insure a good milk supply, but that of more importance still is the freedom from bacterial contamination. Long before milk has become sour to the taste, it may contain enormous numbers of bacteria and has usually become unwholesome. The number of bacteria is, therefore, the best means of determining whether the milk is clean and fresh. As a part of the movement for the improvement of the New York City milk supply, the author, by means of a grant from the Rockefeller Institute for Medical Research, and under the supervision of Dr. Park, visited a number of the dairies and farms which contribute to the city's supply of milk. Taking into account then the methods daily put in practice by the best of our dairies, as subject to bacteriological testing, the writer endeavors to set forth practical measures for use on a large or small scale for the exclusion of bacteria from milk. Veterinary and agricultural questions are not considered, but every means by which the number of bacteria may be limited. This includes the situation and care of pasture, cow-yards, and barns, the cows, the milkers, the cans, the bottling, and the getting of the milk to the consumer. Numerous photographic pictures add to the value of the text, which constitutes an evening's pleasant and instructive reading.

FUNCTIONAL DIAGNOSIS OF KIDNEY DISEASE WITH SPECIAL REFERENCE TO RENAL SURGERY, CLINICAL EXPERIMENTAL INVESTIGATIONS. By Dr. LEOPOLD CASPER (Privatdocent an der Universität), and Dr. PAUL FRIEDRICH RICHTER (Assistent der III. med. Klinik), in Berlin. Translated by Dr. Robert C. Bryan, Adjunct Professor Genito-Urinary Diseases, University Med. College, Richmond, Va., and Dr. Henry L. Sanford, Resident Surgeon Lakeside Hospital, Cleveland. P. Blakiston's Son & Co., Philadelphia.

THIS little book contains an excellent résumé of recent work on the kidneys, especially as regards newer methods of determining their sufficiency. Cryoscopy receives full and clear treatment, especially as regards its usefulness for surgery. Dr. Casper's name especially is a guarantee of the thoroughly scientific quality of the book and also of its practical character. Excellent hints for ureter cystoscopy are given and the book will doubtless prove extremely interesting and useful for those engaged in such work.

BOOKS RECEIVED.

The MEDICAL NEWS *acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the* MEDICAL NEWS *will shortly appear.*

PSYCHOTHERAPY. By Dr. Sheldon Leavitt. 8vo, 247 pages. Garner-Taylor Press. Chicago.

THE PRINCIPLES AND PRACTICE OF HYDROTHERAPY. By Dr. Simon Baruch. Second edition. 8vo, 487 pages. Illustrated. Wm. Wood & Co., New York.

A TEXT-BOOK OF CLINICAL ANATOMY. By Dr. D. A. Eisendrath. 8vo, 515 pages. Illustrated. W. B. Saunders & Co., Philadelphia, New York and London.

A TEXT-BOOK OF PATHOLOGY. By Dr. Alfred Stengel. Fourth edition. 8vo, 933 pages. Illustrated. W. B. Saunders & Co., Philadelphia, New York and London.

A TEXT-BOOK OF THE PRACTICE OF MEDICINE. By Dr. Jas. M. Anders. Sixth edition. 8vo, 1,300 pages. Illustrated. W. B. Saunders & Co., Philadelphia, New York and London.

THE AMERICAN ILLUSTRATED MEDICAL DICTIONARY. By W. A. Newman Dorland. Third edition. 800 pages. Illustrated. W. B. Saunders & Co., Philadelphia, New York and London.

NERVOUS AND MENTAL DISEASES. By Drs. Archibald Church and Frederick Peterson. Fourth edition. 8vo, 922 pages. Illustrated. W. B. Saunders & Co., Philadelphia, New York and London.

A TEXT-BOOK UPON THE PATHOGENIC BACTERIA. By Dr. Joseph McFarland. Fourth edition. 8vo, 629 pages. Illustrated. W. B. Saunders & Co., Philadelphia, New York and London.

CLINICAL EXAMINATION OF THE URINE AND URINARY DIAGNOSIS. By Dr. J. Bergen Ogden. Second revised edition. 8vo, 418 pages. Illustrated. W. B. Saunders & Co., Philadelphia, New York and London.

FUNCTIONAL DIAGNOSIS OF KIDNEY DISEASE. By Drs. L. Casper and P. F. Richter. Translated by Drs. R. C. Bryan and H. L. Landford. 12mo, 233 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.